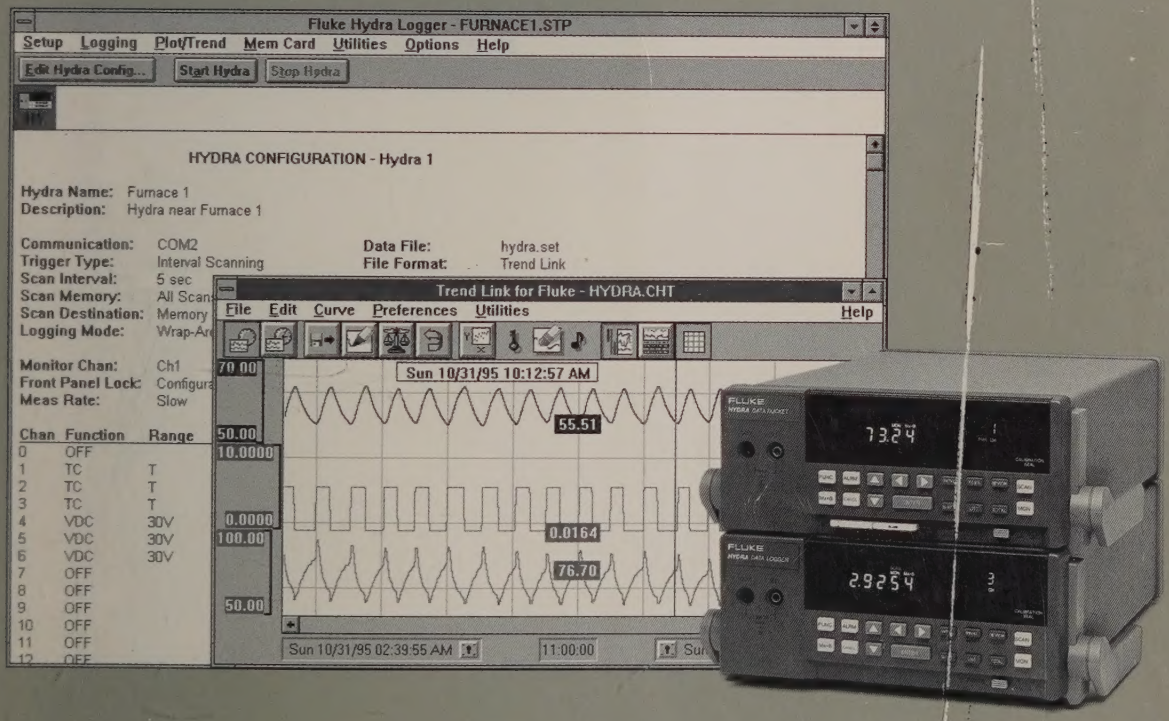
for Windows®

Hydra Logger

Users Manual



Data Acquisition Tools

Portable • Networked • Wireless

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for Windows®

Hydra Logger

Users Manual

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Portable • Networked • Wireless

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Chapter 1
Overview

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Introduction 1-1.

Hydra *Logger for Windows* is a software package supporting communications between a host computer running Microsoft® Windows® and Fluke Hydra-series 2625A Data Logger and 2635A Data Bucket™ data acquisition tools. The host and Hydras are interconnected via serial ports (Figure 1-1), and the host computer runs the Hydra *Logger for Windows* application to provide an operating environment for the Hydras. The software package operates up to two instruments, simultaneously or individually, in any mix of 2625A and 2635A models.

Hydra *Logger for Windows* may be ordered with or without the *Trend Link for Fluke* trending software package. *Trend Link for Fluke* is also available as a separate option. (See "Options and Accessories" later in this chapter.)

Host Computer Requirements 1-2.

The host computer must meet the following minimum requirements:

- **System** IBM PC Compatible with an Intel 386 microprocessor or greater.
- **Hard Disk Drive** Hard disk drive with at least 4 MB of free space.
- **Floppy Disk Drive** 1.44 MB (3 ½-inch) floppy disk drive.
- **Memory** 640 kB of Main Memory plus at least 4 MB extended memory.
- **Monitor** Any monitor supported by Windows (a color monitor is preferred).
- **Operating System** Microsoft Windows version 3.1 or later.

A mouse or other type of pointing device is optional but it facilitates operation.

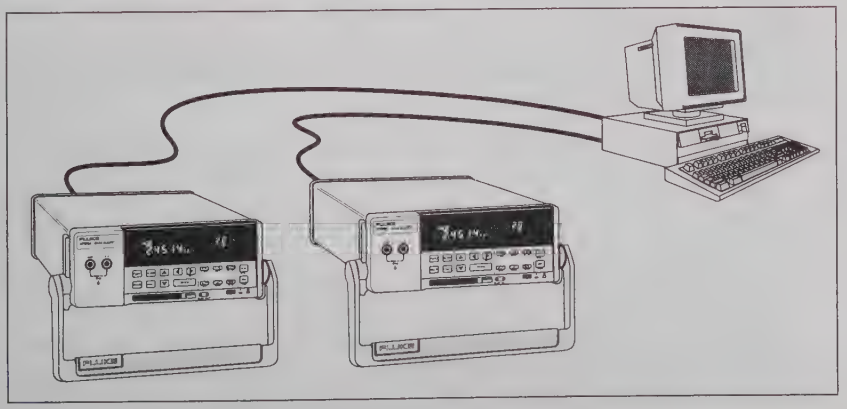

Figure 1-1. Typical Data Acquisition System

Hydra Requirements 1-3.

Hydra *Logger for Windows* is compatible with the following Hydras:

- **2625A Data Logger** Running software version 5.5 or higher.
- **2635A Data Bucket** Running any software version.

To determine the software version of the 2625A Data Logger, power the 2625A and press the front panel left and right arrow keys simultaneously. The software version (larger number)appears in the front panel display. Press CANCEL to clear the display. If the software version is lower than 5.5, contact a Fluke Service Center for a software upgrade (see Appendix A).

Hydra Logger for Windows Software 1-4.

The Hydra *Logger for Windows* software package provides an operating environment for the Hydra instruments. It builds an instrument and configuration database, transfers the configuration to the instrument, acquires data from the instrument, and manages the acquired data. When Hydra *Logger for Windows* is started, it opens to the Main Window (Figure 1-2), which is the central screen for instrument configuration and operation.

The software package is provided in two configurations: 26X5A-901 does not include the *Trend Link for Fluke* trending utility; 26X5A-902 includes the *Trend Link for Fluke* utility. The Hydra *Logger for Windows* portion is identical for either package. The *Trend Link for Fluke* utility may be added later by purchasing option 26XXA-904. (See "Options and Accessories.")

The major features of Hydra *Logger for Windows* include:

- **Multiple Instruments** Supports one or two Hydras in simultaneous operation via two host computer COM ports.
- **Ease of Use** Provides fast and easy configuration and operation using menus and windows.
- **Online Help** Extensive online help provides instantaneous answers to any setup or operating question.
- **Multiple Data Files** Logs scan records to separate data files for each Hydra.
- **Data Bucket Memory Card File Management** Supports management of files on 2635A Data Bucket memory cards, including data file conversion, file delete, configuration file transfer, memory card status and formatting.

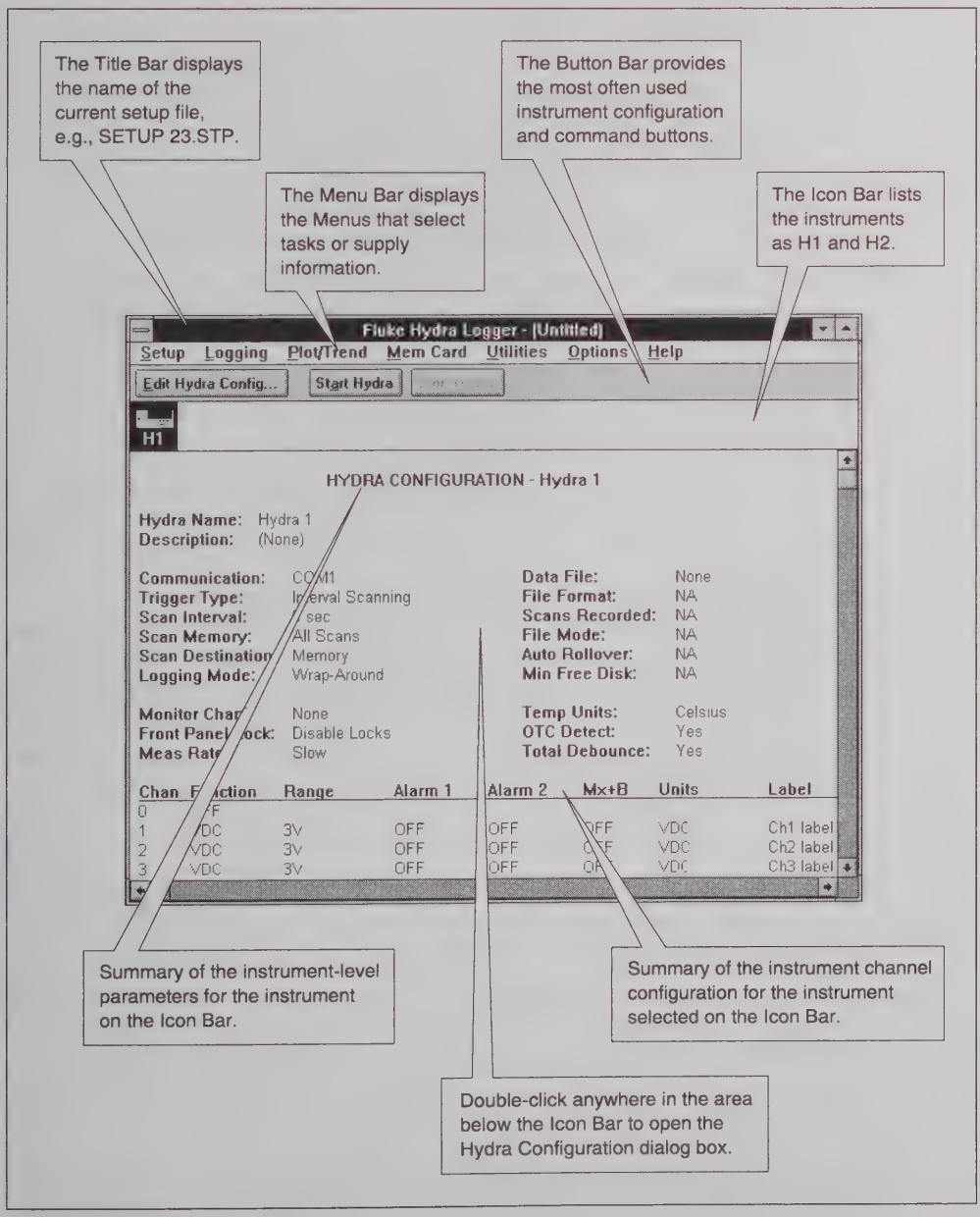
The Title Bar displays the name of the current setup file, e.g., SETUP 23.STP.
The Menu Bar displays the Menus that select tasks or supply information.
The Button Bar provides the most often used instrument configuration and command buttons.
The Icon Bar lists the instruments as H1 and H2.
Fluke Hydra Logger - [Untitled]
Setup Logging Plot/Trend Mem Card Utilities Options Help
Edit Hydra Config...
Start Hydra
H1
HYDRA CONFIGURATION - Hydra 1
Hydra Name: Hydra 1
Description: (None)
Communication: COM1
Trigger Type: Interval Scanning
Scan Interval: 1 sec
Scan Memory: All Scans
Scan Destination: Memory
Logging Mode: Wrap-Around
Monitor Char: None
Front Panel Lock: Disable Locks
Meas Rate: Slow
Data File: None
File Format: NA
Scans Recorded: NA
File Mode: NA
Auto Rollover: NA
Min Free Disk: NA
Temp Units: Celsius
OTC Detect: Yes
Total Debounce: Yes
Chan Function Range Alarm 1 Alarm 2 Mx+B Units Label
0 OFF
1 VDC 3V OFF OFF OFF VDC Ch1 label
2 VDC 3V OFF OFF OFF VDC Ch2 label
3 VDC 3V OFF OFF OFF VDC Ch3 label
Summary of the instrument-level parameters for the instrument on the Icon Bar.
Summary of the instrument channel configuration for the instrument selected on the Icon Bar.
Double-click anywhere in the area below the Icon Bar to open the Hydra Configuration dialog box.

Figure 1-2. Typical Main Window

- **Data Logger Scan Memory Upload** Supports upload and conversion of 2625A Data Logger and 2635A Data Bucket scan memory data.
- **Links Windows Applications** Supports Dynamic Data Exchange (DDE) for linking Hydra Logger remote measurement data with other Windows applications such as spreadsheets.
- **Quick Plot** Displays a quick plot with up to eight measurement channels from either Hydra, including a tabular listing of readings below the plot.
- **Trend Link Plot (optional)** Views and analyzes realtime and historical trend data using the optional *Trend Link for Fluke* package. Compares data from multiple sources, performs simple Statistical Process Control (SPC) calculations on selected portions of the data, annotates data, highlights curve limits, zooms in on data of interest, and exports data to a spreadsheet or other analysis application such as MathCAD.

A summary of Hydra *Logger for Windows* setup parameters is shown in Table 1-1.

Setup Files 1-5.

Setup files contain the data for a complete Hydra *Logger for Windows* configuration for the instruments on the Icon Bar, including channel configurations, scanning configuration, and so forth. The configuration is saved as a setup file, for example, SETUP12.STP. In subsequent operations when SETUP12.STP is opened, the instrument configurations are loaded from that setup. Hydra *Logger for Windows* can also be started directly into a particular setup file, and the instrument configuration in the Main Window can be printed as a text file. (See Chapter 3.)

Data Files 1-6.

Data files contain the measurement data acquired by the instruments. After the instrument completes an individual measurement scan, the data is stored temporarily in the instrument internal memory. Hydra *Logger for Windows* checks the instrument internal memory and when scan data is present (up to 10 scans), the data is returned to the host computer over the serial interface and recorded into a data file. Data Files are recorded in one of two formats: ASCII and Trend Link.

ASCII The ASCII (CSV) data file format stores the data in ASCII characters and is directly compatible with analysis applications like Excel and Lotus 1,2,3.

Trend Link The Trend Link data file format is *required* to use the real-time trending capability offered by the Trend Link plotting package.

Table 1-1. Summary of Setup Parameters

Setup Parameter	Description
Instrument Setup	Measurement Rate (Slow, Fast)
	Temperature Units (Celsius, Fahrenheit)
	Scan Trigger (Interval, External, Monitor Alarm)
	Scan Interval (0 to 38439 seconds)
	Scan Destination (instrument memory, printer, memory card)
	Monitor Channel (displayed on instrument front panel)
	Front Panel Lock (Review, Monitor, Configuration, Disable)
	Open Thermocouple Detect (Enable/Disable)
	Totalizer Debounce (Enable/Disable)
	Instrument Name (38 characters)
	Instrument Description (79 characters)
Analog Channels Setup	Function (AC Volts, Resistance, etc.)
	Range (for selected function)
	Two- or Four-Wire Connections (Ohms and RTDs functions)
	RTD R0 (DIN 385)
	Current Resistance Shunt Value (dc amperes function)
	Mx+B Scaling (M, B)
	Alarms (one or two, high, or low, and alarm value)
	Digital I/O (associate with each Alarm)
	Units Label (identify measurement units)
	Channel Label identify channel)
Quick Plot Setup	8 Channels (any configured channel)
	Sampling Interval (1 to 3600 seconds)
	Scale Maximum and Minimum
Data Collection	Data File Recording (enable/disable)
	Data File Name (e.g., TESTDATA.CSV)
	Data File Comment String (79 characters maximum)
	Data File Record Conditions (append or overwrite)
	File Format (ASCII, Trend Link)
	File Rollover (file size, time interval, time of day)

Starting and Stopping Logging 1-7.

Starting and stopping logging can be done one instrument at a time, or two instruments may be started and stopped in a single operation. Simulate scanning is selected using the Simulate Logging on Start command (Logging menu).

Triggering and Scanning 1-8.

Hydra *Logger for Windows* enables and disables instrument scanning when the respective Start Hydra and Stop Hydra commands are executed from the Button Bar in the Main Window (below) or from the Logging menu.

Once scanning is enabled for a Hydra, each scan is triggered by a trigger source. The three trigger types are Interval Trigger, External Trigger, and Monitor Alarm Trigger. The trigger type and trigger type combinations are as follows:

Interval A scan is triggered immediately after scanning is enabled. Each successive scan is triggered at the Scan Interval.

External A scan is triggered immediately after the external trigger line is pulled low. While the external trigger line remains low (active), each successive scan is triggered at the Scan Interval. The External trigger line connection is made at the rear of the Hydra at the TR terminal.

Monitor Alarm A scan is triggered immediately after a channel being used as an alarm trigger transitions into alarm. While at least one alarm trigger channel remains in alarm, each successive scan is triggered at the Scan Interval.

Interval + External While the external trigger line is high, scans are triggered the same as with Interval. While the external trigger line is low, scans are triggered the same as with External.

Interval + Monitor Alarm While no alarm trigger channels are in alarm, scans are triggered the same as with Interval. While at least one alarm trigger channel is in alarm, scans are triggered the same as with Monitor Alarm.

Channel Monitoring 1-9.

Hydra *Logger for Windows* allows the selection of a channel to be monitored on the Hydra front panel display when scanning starts.

Mx+B Scaling 1-10.

Mx+B scaling multiplies a measurement by a multiplier M and then offsets it by an offset B. For example, Mx+B scaling of 100x+50 applied to an instrument measurement of 1.15 would result in a reading of 100(1.15)+50=165. Mx+B scaling is typically used to calibrate a sensor or transducer to provide for display and recording in engineering units.

Alarms 1-11.

Two alarms, Alarm 1 and Alarm 2, can be applied to any configured channel. An alarm condition is set when a measurement falls below a low alarm value (low alarm) or rises above a high alarm value (high alarm). Measurement scan data includes all alarm conditions, and alarms can be used to trigger scanning and to set a Digital I/O line to a logic low. The Digital I/O status can also be shown on the Quick Plot. If Mx+B scaling is applied to the channel, alarms are based on the scaled values.

Digital I/O 1-12.

The status of the Hydra Digital I/O lines is reported as part of the scan record and is expressed as the decimal equivalent of the eight binary bits. For example, 11111111 (DIO7 to DIO0) is reported as decimal 255; 00001111 is reported as decimal 15; and so forth. The Digital I/O status can also be shown on the Quick Plot. The digital I/O connections are made at the Hydra rear-panel DIGITAL I/O connector.

Totalizer Channel 1-13.

The status of the Hydra Totalizer is reported as part of the scan record and has a maximum count of 65,535. The Totalizer status can also be shown on a Quick Plot. The instrument continuously samples the totalizer input independently from instrument scanning and other activities. If the Totalizer overflows (maximum count is reached), the Hydra display briefly shows OL (overload) and then begins counting from zero again. The connections for the totalizer channel line are at the Hydra rear panel DIGITAL I/O connector, terminals Σ and GND.

A totalizer input from contact closures increments on the "open" portion of the switch sequence close-open. To prevent switch contact "bounce" from triggering false readings, select the Totalizer Debounce feature. The maximum totalizer rate is 5,000 transitions per second without debounce and 500 transitions per second with debounce.

Options and Accessories *1-14.*

Table 1-2 summarizes the available Models, Options, and Accessories, including measurement transducers, software, connector sets, cables, and components. See the corresponding Hydra Users Manual for additional options and accessories.

Table 1-2. Models, Options, and Accessories

Model	Description
2620A-100	I/O Connector Set Universal Input Module Digital I/O and Alarm Output Connectors
2620A-101	Precision 10Ω Current Shunt
2625A	Hydra Data Logger
2635A	Hydra Data Bucket
26X5A-901	Hydra *Logger for Windows* Software Package *Logger for Windows* software (1 diskette) *Hydra Logger for Windows Users Manual*
26X5A-902	Hydra *Logger for Windows* with *Trending* *Logger for Windows* software (1 diskette) *Trend Link for Fluke* software (2 diskettes) *Hydra Logger for Windows Users Manual* *Trend Link for Fluke Reference Manual*
26XXA-600	Hydra Portable Battery Pack
26XXA-904	*Trend Link for Fluke* Software Package *Trend Link for Fluke* software (2 diskettes) *Trend Link for Fluke Reference Manual*
80i-1010	Clamp-On DC/AC Current Probe
80i-410	Clamp-On DC/AC Current Probe
C40	Hydra Soft Carrying Case
PV350	Pressure/Vacuum Transducer Module
RS40	DB-9 to DB-25 Hydra-to-host-computer null modem RS-232 cable (2m length)
RS41	DB-9 to DB-25 Hydra-to-modem modem RS-232 cable (2m length)
RS42	DB-9 to DB-25 Hydra-to-printer null modem RS-232 cable (2m length)
RS43	DB-9 to DB-9 Hydra-to-host-computer null modem RS-232 cable (2m length)

How to Use this Manual 1-15.

This manual has six chapters and eight appendixes as described below. Locate and refer to the chapter or appendix of interest.

Chapter 1 - Overview Provides an overview of Hydra *Logger for Windows*.

Chapter 2 - Preparing for Operation Provides step-by-step procedures for installing Hydra *Logger for Windows*, configuring the Hydras for operation. and testing and configuring the data acquisition system.

Chapter 3 - Using Hydra *Logger for Windows* Provides procedures for operating the instruments using Hydra *Logger for Windows*.

Chapter 4 - Reference for Hydra *Logger for Windows* Provides a complete description of Hydra *Logger for Windows*.

Chapter 5 - Using Trend Link for Fluke Provides common operations for the *Trend Link for Fluke* software package. Detailed reference information is provided in the *Trend Link for Fluke Reference Manual* (PN 944322).

Chapter 6 - Maintenance Provides information for maintaining the data acquisition system based on Hydra *Logger for Windows*.

Appendixes Ancillary information including: Fluke Service Centers; Specifications; File Formats; Dynamic Data Exchange (DDE); Exception Condition Handling.

Chapter 2
Preparing for Operation

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Introduction 2-1.

This portion of the manual describes how to install the Hydra *Logger for Windows* and *Trend Link for Fluke* software, and how to set up the host computer and Hydras for operation. When installing both software packages, install *Trend Link for Fluke* first, followed by Hydra *Logger for Windows*. Complete the chapter topics in the following sequence:

- Unpacking and Inspection
- Installing *Trend Link for Fluke*
- Installing Hydra *Logger for Windows*
- Connecting the Host Computer and Hydras
- Configuring the Hydras
- Testing the Communications Link
- Creating a Hydra *Logger for Windows* Setup File
- Connecting Hydra Analog and Digital Lines

Unpacking and Inspection 2-2.

Before beginning the installation and configuration procedures, carefully remove the contents of the shipping container and check them against the listing below.

Hydra *Logger for Windows* 26X5A-901 Software Package

- Hydra *Logger for Windows* Software (1 diskette)
- Hydra *Logger for Windows Users Manual*
- Software Registration Card

Hydra *Logger for Windows* 26X5A-902 Software Package

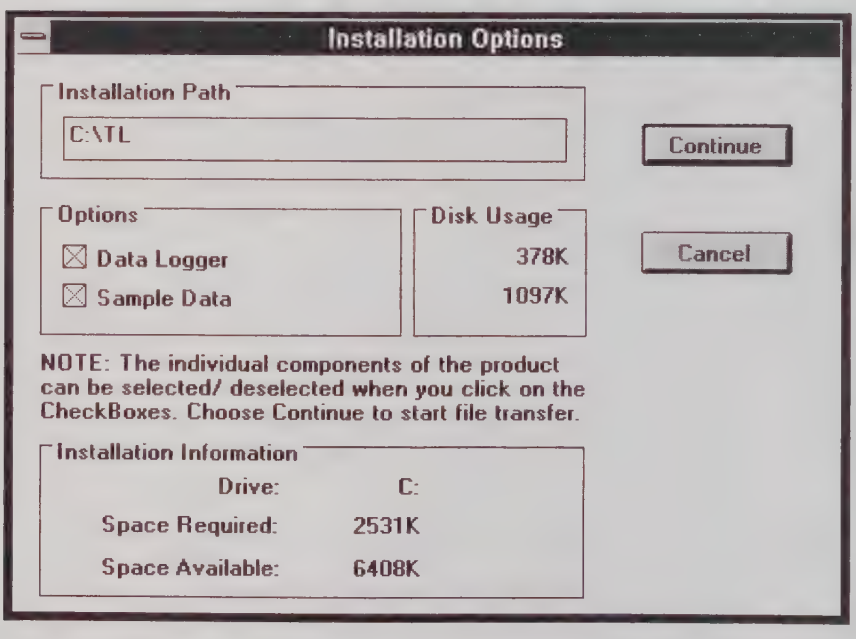
- Hydra *Logger for Windows* Software (1 diskette)
- Hydra *Logger for Windows Users Manual*
- Software Registration Card
- *Trend Link for Fluke* Software (2 diskettes)
- *Trend Link for Fluke Reference Manual*

If any of the contents are damaged or missing, contact the place of purchase immediately. Save the container and packing material for possible future use.

Installing Trend Link for Fluke 2-3.

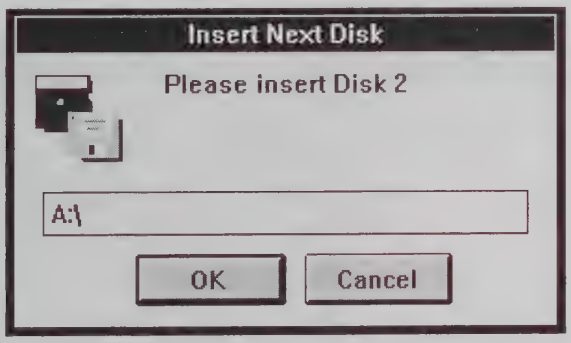
If your configuration includes the optional *Trend Link for Fluke*, complete the following to install the software package. (See "Options and Accessories" in Chapter 1 for more information about *Trend Link for Fluke*.)

1. Start Windows and insert the Trend Link diskette #1 in a disk drive (the `a:` drive is assumed for this procedure).
2. In Program Manager, select the Run command from the File menu.
3. Enter `a:\setup` in the Command Line box. Click OK to open the Installation Options dialog box (below).

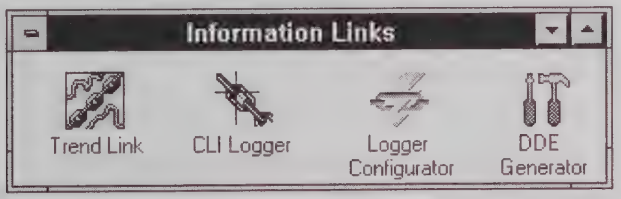


4. Verify Space Available exceeds Space Required. If not, click Cancel and erase unneeded files, and repeat procedure. Modify the drive/directory if `c:\tl` is not acceptable. Check both Data Logger and Sample Data. Click OK.

5. When prompted (below), insert diskette #2 and click OK.



6. Click OK in response to the Installation is Complete message. An Information Links group is created in Program Manager with four icons, as shown below.

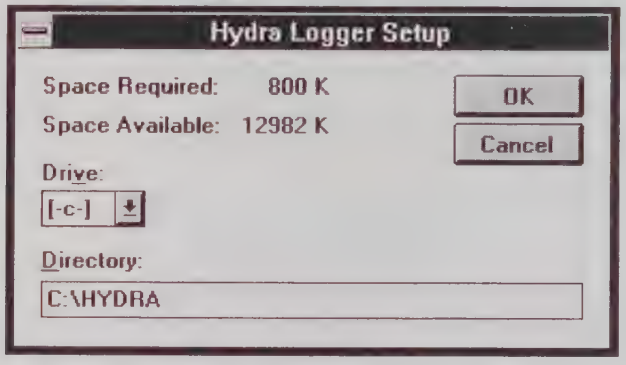


Installing Hydra Logger for Windows *2-4.*

Complete the following procedure to install the Hydra *Logger for Windows* software.

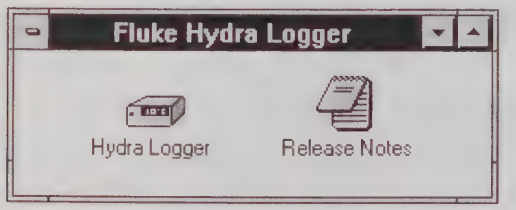
1. Start Windows and insert the Hydra *Logger for Windows* diskette in a disk drive. The `a:` drive is assumed for this procedure.
2. In Program Manager, select the Run command from the File menu.

3. Enter `a:\setup` in the Command Line box. Click OK to open the Hydra Logger Setup dialog box (below).



4. Verify Space Available exceeds Space Required. If not, click Cancel and erase unneeded files, and repeat procedure. Modify the drive/directory if `c:\hydra` is not acceptable. Click OK.

5. A Fluke Hydra Logger group is created with two icons (below).



6. Click OK in the Setup is Complete! message box.

Connecting the Host Computer and Hydras *2-5.*

Connect the host computer and Hydras as shown in Figure 2-1. Use the indicated Fluke null-modem cables (see "Options and Accessories" in Chapter 1) or equivalent. For wiring diagrams of null-modem cables (reversed transmit and receive lines), see the associated 2625A Data Logger and 2635A Data Bucket user manuals. The maximum length of a standard RS-232 cable connection is 15 meters (50 feet), although longer cable lengths are permitted if the load capacitance measured at a connection point is less than 2500 pF.

If the COM1 and COM2 are not available, analyze the hardware configuration for alternatives. If COM3 and COM4 are installed on your host computer, use caution because they often share interrupts with COM1 and COM2 and they may not be suitable for connecting the Hydras. Ensure the host computer meets the minimum requirements. (See "Host Computer Requirements" in Chapter 1.)

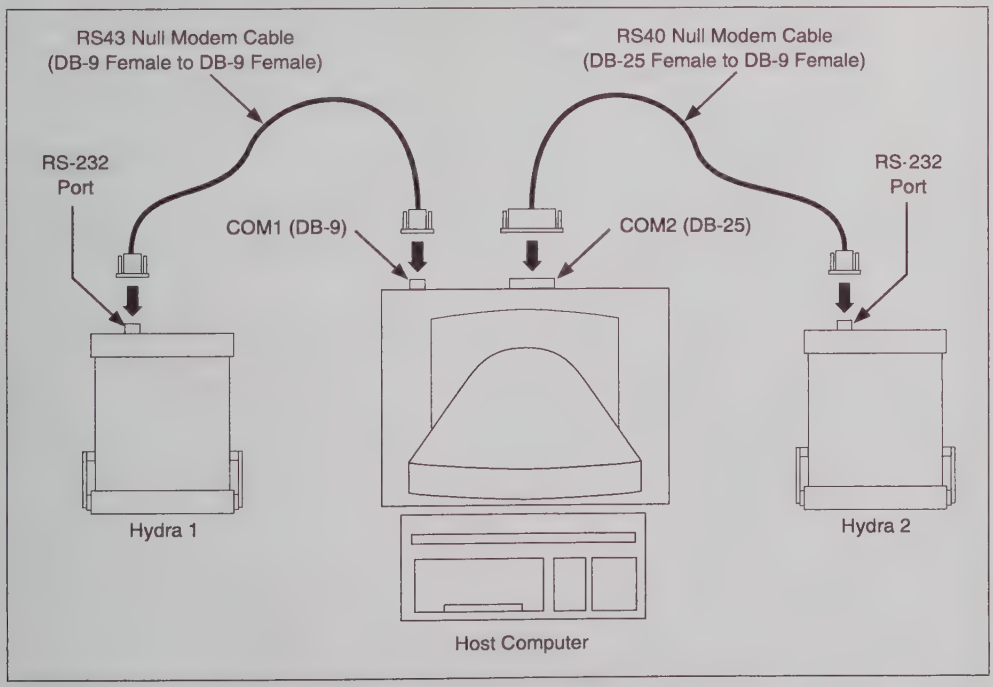


Figure 2-1. Typical Host Computer/Hydra Connections

Configuring a Hydra 2-6.

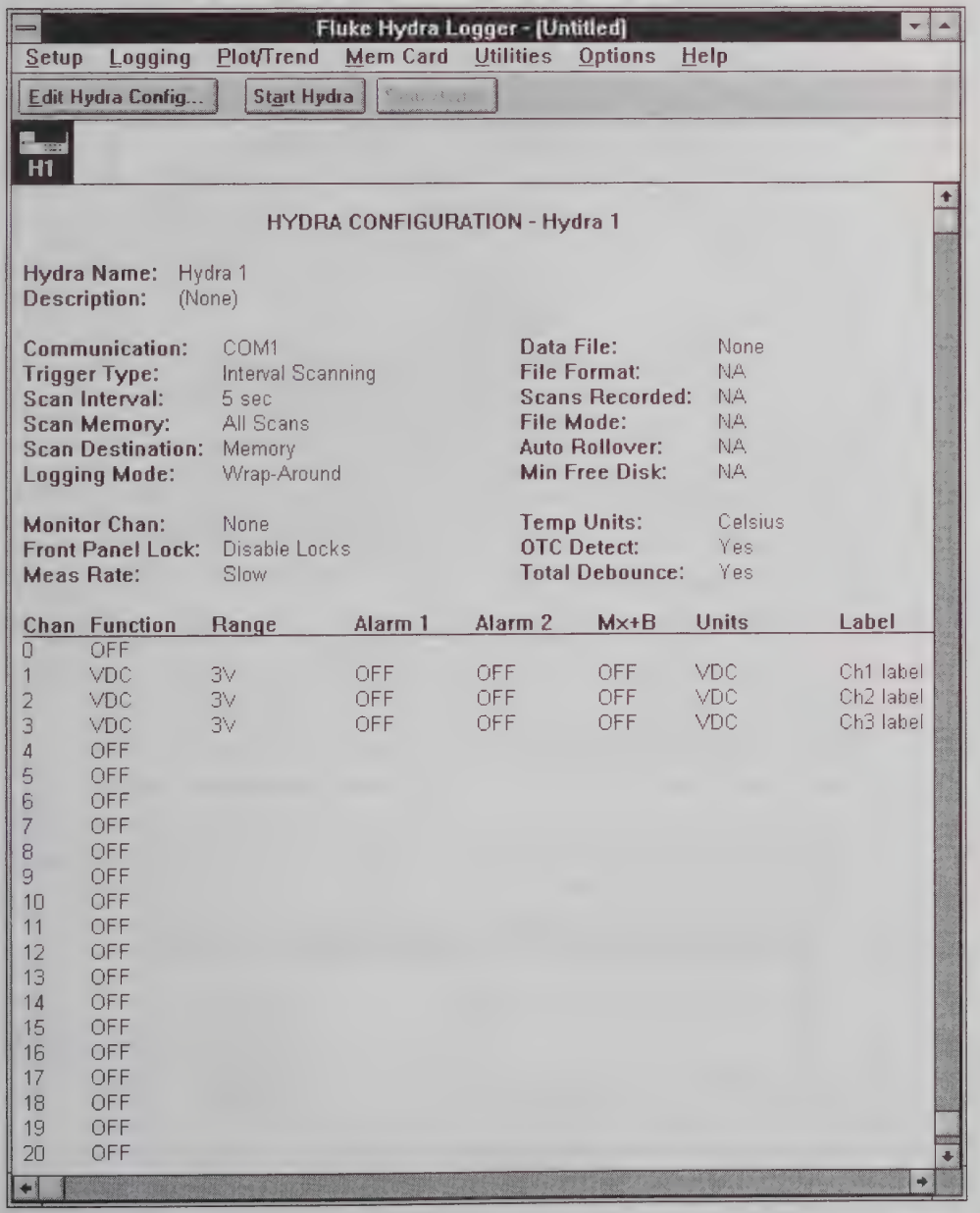
Configuring a Hydra consists of selecting the RS-232 communication parameters to support the RS-232 serial data communications link. This procedure assumes the selection of the default parameters. Complete this procedure for each Hydra.

1. Power the Hydra. To access the COMM (communications) menus, press the front panel SHIFT key and then the LIST key.
2. Press the up/down arrow keys to select 9600 baud. (The baud choices are 300, 600, 1200, 2400, 4800, 9600 and for the 2635A Data Bucket only, two additional choices are 19200 and 38400.) Press ENTER.
3. Press the up/down arrow keys to select parity to no. (The parity choices are no, even, and odd.) Press ENTER. For the 2625A Data Logger, go to Step 5; for the 2635A Data Bucket, continue to Step 4.
4. Press the up/down arrow keys to select cts (Clear to Send) flow control to off. (The flow control choices are off and on.) Press ENTER.
5. Press the up/down arrow keys to select echo characters to off. (The echo choices are off and on.) Press ENTER.

Testing the Communications Link 2-7.

Complete the following procedure to test the communications link between the host computer and the Hydras.

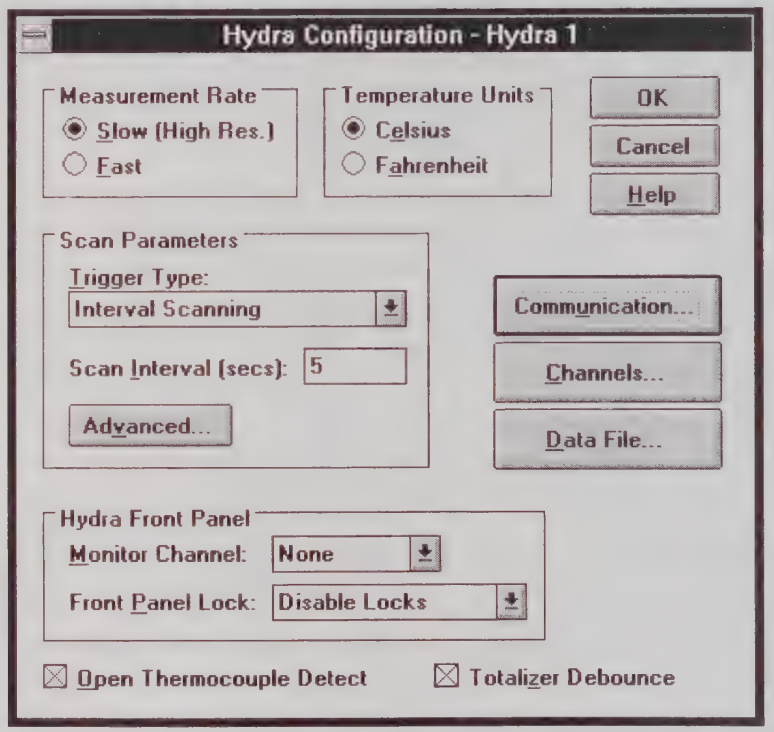
1. Start Hydra *Logger for Windows* by opening Hydra Logger from the Fluke Hydra Logger group of Program Manager. The default Hydra *Logger for Windows* opening screen (Main Window) is shown in Figure 2-2.
2. If you have connected two Hydras, add a second Hydra icon on the Icon Bar by selecting the Create New Hydra command from the Setup menu.



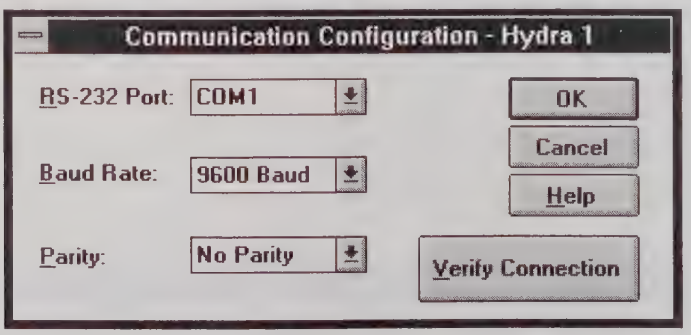
Chan	Function	Range	Alarm 1	Alarm 2	Mx+B	Units	Label
0	OFF						
1	VDC	3V	OFF	OFF	OFF	VDC	Ch1 label
2	VDC	3V	OFF	OFF	OFF	VDC	Ch2 label
3	VDC	3V	OFF	OFF	OFF	VDC	Ch3 label
4	OFF						
5	OFF						
6	OFF						
7	OFF						
8	OFF						
9	OFF						
10	OFF						
11	OFF						
12	OFF						
13	OFF						
14	OFF						
15	OFF						
16	OFF						
17	OFF						
18	OFF						
19	OFF						
20	OFF						

Figure 2-2. Default Main Window

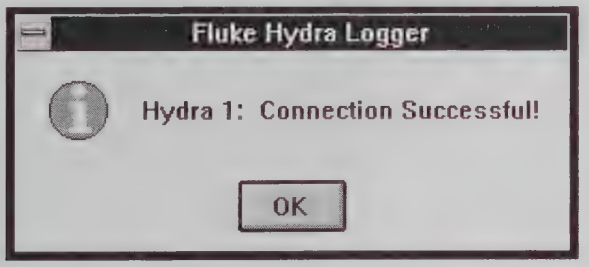
3. Select (highlight) the desired H1 or H2 icon; then click the Edit Hydra Config button, opening the Hydra Configuration dialog box (below).



4. Click the Communication button, opening the Communication Configuration dialog box (below). Select the corresponding COM port, baud rate, and parity that match your selections in the "Configuring a Hydra" procedure.



5. Click the Verify Connection button to test communications between the host computer and the selected Hydra. If communications are established, a Connection Successful! message is returned (below).



(If communications are not established, an error message is returned. If this should occur, click OK in the message box and go directly to the "Quick Check" paragraph below to resolve the problem. Do not continue with this procedure and do not close the Communication Configuration dialog box.)

6. Click OK in each message and dialog box to return to the Main Window. Repeat this procedure for both H1 and H2 Hydras, as applicable.

Creating a Hydra Logger for Windows Setup File 2-8.

After verifying communications above, save the communication parameters and Icon Bar configuration in a setup file by selecting the Save Logger Setup As command from the Setup menu. In the Save Setup As dialog box, assign the desired setup file name, for example, SETUP.STP. Click OK to save the file.

When you start Hydra *Logger for Windows* in subsequent operations, select the Load Logger Setup command from the Setup menu to reload the setup file. A setup file saves the instrument configurations including the instruments on the Icon Bar, communication parameters, channel configurations, scanning configuration, and so forth. For a procedure to start Hydra *Logger for Windows* directly into a setup file, see Chapter 3.

Using Quick Check 2-9.

Quick Check locates and corrects communication problems between the host computer and Hydras when Verify Connection fails in Step 5 of the "Testing the Communications Link" procedure. When Verify Connection fails, the resultant message box indicates the problem area as shown in Table 2-1. Refer to this table to resolve your communications problem.

Table 2-1. Quick Check

Error Message	Comment	Action
Hydra n: Unable to initialize communications port!	The host computer COM port you selected for the Hydra does not exist.	Check your host computer for its COM port configuration or select a different COM port.
The host computer COM port is not responding.	The host computer COM port is being used by other hardware or application.	Check what other applications are running or what hardware is active, and clear the COM port for use with Hydra *Logger for Windows*.
Hydra n: RS-232 Communications error!	The selections for Baud Rate and Parity in Hydra *Logger for Windows* does not match the selections made at the Hydra.	Check the baud rate and parity selections to resolve the conflict between the Hydra and Hydra *Logger for Windows* software.
The RS-232 parameters for the Hydra and for the Logger software do not match.	The host computer may be running a conflicting application that uses the same COM port.	If using COM3 or COM4, you may have an interrupt conflict with COM1 or COM2. Stop other applications and try to verify communications again to confirm this problem.
	There is a hardware conflict for the COM port (internal modem, serial mouse, etc.).	Resolve the hardware conflict to make the COM port fully available for Hydra operations.
Hydra n: Time-out waiting for Hydra!	The Hydra is unpowered, failed self-test, or the RS-232 cable is disconnected or the wrong type of cable has been used.	Power the Hydra, look for any self-test errors, and try another connection cable. Be sure the cable is in a null-modem configuration. See the corresponding Hydra users manuals for cable information.
The host computer is unable to make contact with the Hydra.	The host computer RS-232 parameters and Hydra RS-232 parameters do not match.	Check the baud rate and parity selections to resolve the conflict between the Hydra and Hydra *Logger for Windows* software.
	Other applications are running and trying to use the COM port at the same time.	Temporarily use a different COM port to confirm the problem.
	The Hydra is connected to the wrong COM port.	Verify COM port connection at host computer. Connection to COM3 or COM4 may have interrupt conflicts.

Table 2-1. Quick Check (cont)

Error Message	Comment	Action
Hydra n: Unsupported model or version of Hydra! The Hydra you are using is not supported by Hydra *Logger for Windows*.	The Hydra is not a 2625A Data Logger running software version 5.5 or higher, or is not a 2635A Data Bucket running any software version.	Connect the correct model Hydra. To check the 2625A software version, press the front panel left and right arrow keys simultaneously. The software version appears as the larger number in the front panel display. Press CANCEL to clear the display. If the software version is lower than 5.5, contact a Fluke Service Center for a software upgrade. (See Appendix A.)

Connecting Hydra Analog and Digital Lines *2-10.*

Connect the measurement lines, ALARM OUTPUTS, and DIGITAL I/O lines as described in the following Hydra users manuals:

2625A Data Logger *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (PN 885988).

2635A Data Bucket *Hydra 2635A Data Bucket Users Manual* (PN 931894).

Chapter 3
Using Hydra Logger for Windows

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Introduction 3-1.

This chapter describes how to operate Hydra *Logger for Windows* software. Hydra *Logger for Windows* operations are summarized in a series of procedures that are grouped in the following major categories:

- **Opening and Closing Hydra *Logger for Windows*** Opening and closing the Hydra *Logger for Windows* application.
- **Hydra Configuration Procedures** How to enter, save, download, upload, and print Hydra configuration data.
- **Logging Operations** Starting and stopping the Hydras, using DDE, and monitoring and optimizing performance.
- **Processing the Data** How to view, print, and process the data files in other applications.
- **Quick Plot** How to view the measurement trends during Hydra scanning, save and print the plot, and create a Quick Plot from a data file.
- **Memory Card File Management** How to convert, transfer, and perform various functions on Data Bucket memory card files.
- **Logging Memory Upload** Uploading scan data from a Hydra scan memory.

These procedures assume you have a working knowledge of Hydra operation as described in the following Hydra manuals:

- **2625A Hydra Data Logger** Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual (PN 885988).
- **2635A Hydra Data Bucket** Hydra 2635A Data Bucket Users Manual (PN 931894).

Online help also describes Hydra operating characteristics and Hydra *Logger for Windows* features. To access online Help, press the <F1> key at any time, or click any Help button. A summary of all Hydra *Logger for Windows* features and menus is provided in Chapter 4 of this manual, "Hydra *Logger for Windows* Reference." Refer to Chapter 5 of this manual, "Using *Trend Link for Fluke*" for information concerning use of the trend plotting and analysis package.

This chapter assumes you have completed "Creating a *Hydra Logger for Windows* Setup File" in Chapter 2 of this manual, and communications between the host computer and Hydras are operational.

Opening and Closing Hydra Logger for Windows 3-2.

Hydra *Logger for Windows* is opened and closed using icons and menu selections. Choose from the following discussions to suit your requirements:

- **Opening *Hydra Logger for Windows*** Opens the application.
- **Opening *Hydra Logger for Windows* into a Setup File** Enables opening directly into a selected setup file.
- **Opening *Hydra Logger for Windows* into a Setup File and Start Logging** Enables opening directly into a selected setup file and start logging operations.
- **Closing *Hydra Logger for Windows*** Closes the application.

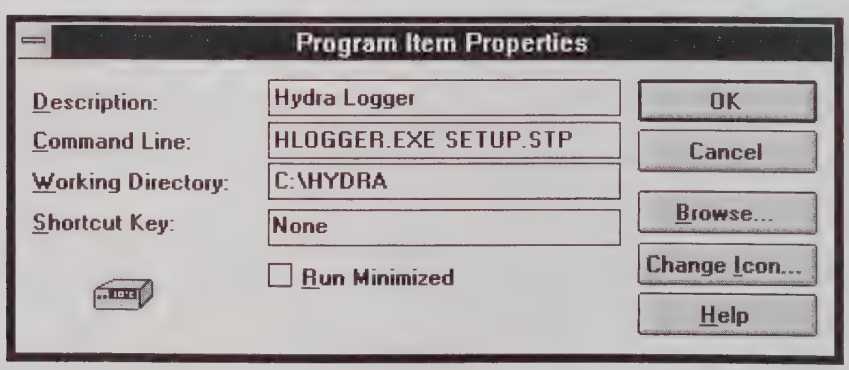
Opening Hydra Logger for Windows 3-3.

To open Hydra *Logger for Windows*, open Hydra Logger from the Fluke Hydra Logger group of Program Manager. Figure 3-1 shows a typical Main Window.

Opening Hydra Logger for Windows into a Setup File 3-4.

Conduct the following procedure to open directly into a selected setup file.

1. In Program Manager select, but do not open, the Hydra Logger icon in the Fluke Hydra Logger group of Program Manager.
2. Select the Properties command from the File menu to open the Program Item Properties dialog box.
3. Modify the Command Line by adding the desired setup filename after the `HLOGGER.EXE` command. For example, to add `SETUP.STP`, the command line is `HLOGGER.EXE SETUP.STP` (see below). Click OK.



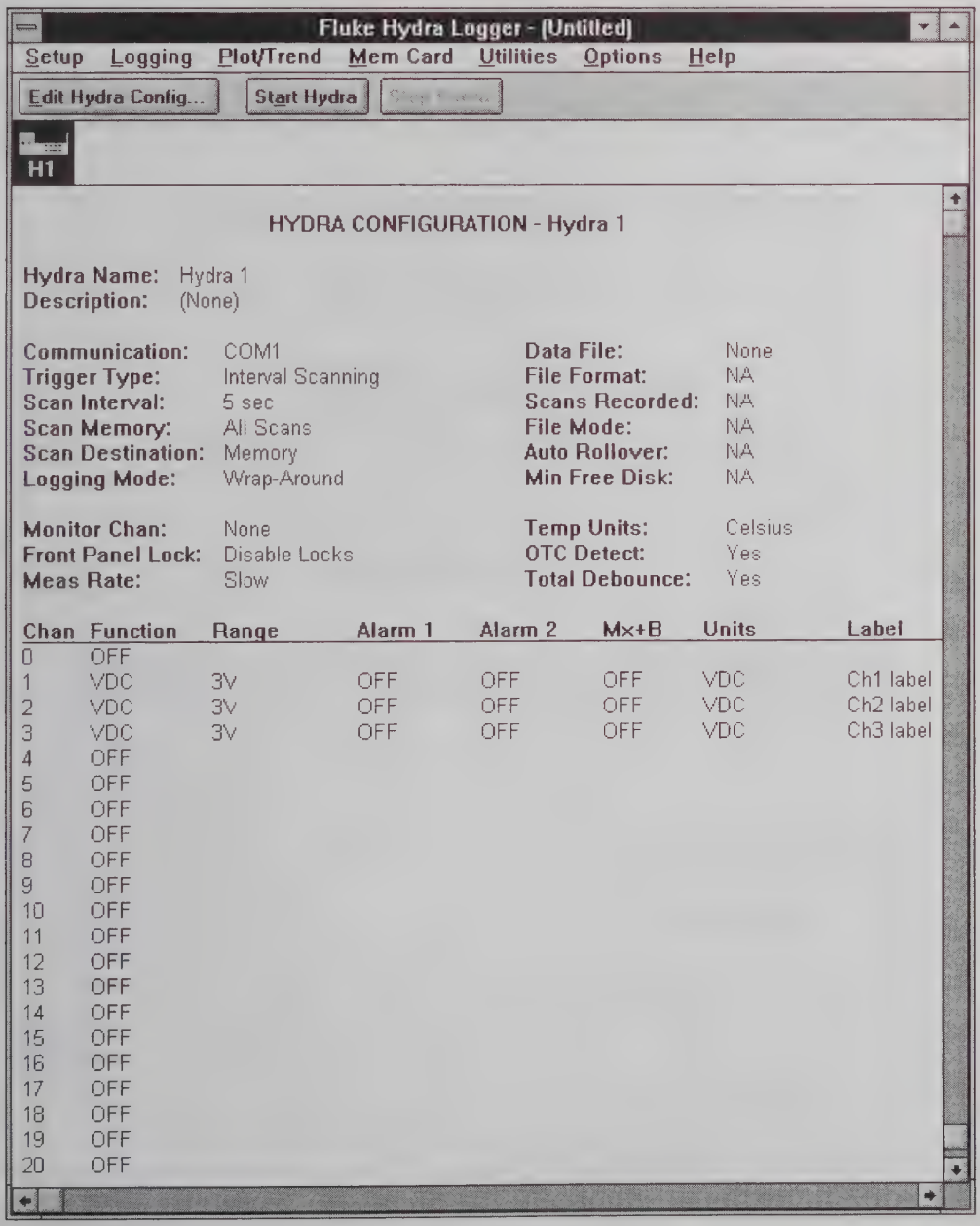


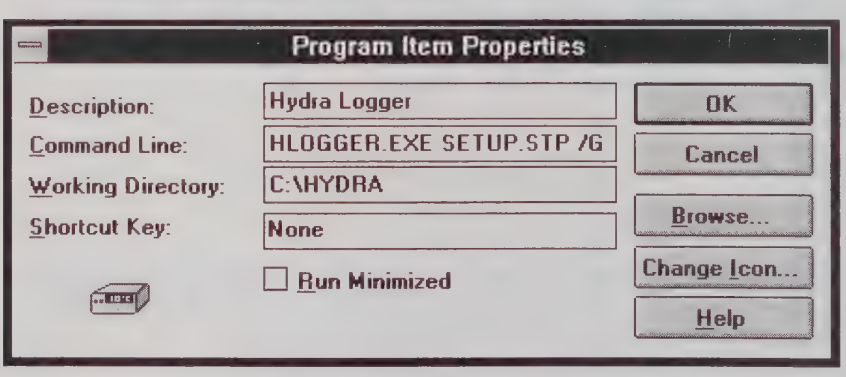
Figure 3-1. Opening Main Window

4. In Program Manager, open Hydra Logger from the Fluke Hydra Logger group. The Main Window shows the selected setup file in the Title Bar.

Opening Hydra Logger for Windows into a Setup File and Start Logging 3-5.

Conduct the following procedure to open directly into a selected setup file and automatically start logging. Generally, this feature is used to automatically resume data collection after a loss of power to the Host Computer. For more information and configuration requirements when using the `/G` switch, refer to Appendix F, "Loss of Power."

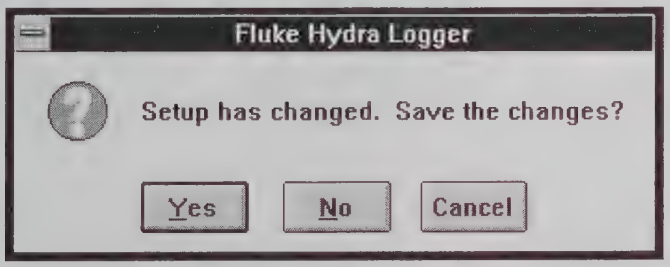
1. In Program Manager select, but do not open, the Hydra Logger icon in the Fluke Hydra Logger group of Program Manager.
2. Select the Properties command from the File menu to open the Program Item Properties dialog box.
3. Modify the Command Line by adding the desired setup filename and `/G` switch after the `HLOGGER.EXE` command. For example, to add `SETUP.STP /G`, the command line is `HLOGGER.EXE SETUP.STP /G` (see below). Click OK when the command line is correct.



4. In Program Manager, open Hydra Logger from the Fluke Hydra Logger group. The Main Window shows the selected setup file in the Title Bar and all Hydras automatically start logging.

Closing Hydra Logger for Windows 3-6.

To close Hydra *Logger for Windows*, select the Exit Application command from the Setup menu, or double-click the Control-Menu box (upper-left corner). If you have changed the setup file and not saved the changes, you are prompted with a Save the changes? message (below):



Click Yes to save the changes and exit the application, click No to discard the changes and exit the application, or click Cancel to return to the application.

Hydra Configuration Procedures 3-7.

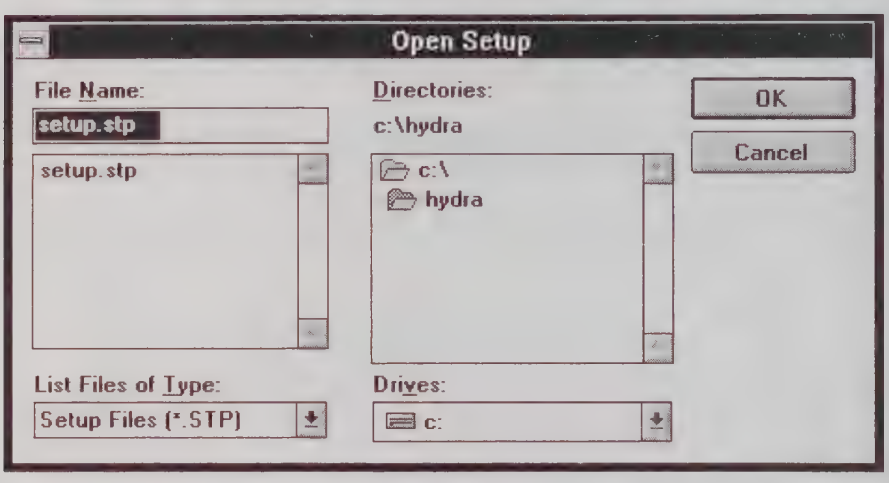
The procedures in this section detail how to edit, copy, download, upload, and print Hydra configuration data. The following topics are covered:

- **Editing Hydra Configuration Data** Editing the Hydra configurations, e.g., scan interval, channel functions, alarms, Mx+B scaling, etc.
- **Copying Configuration Data Between Hydras** Copying a Hydra configuration to the other Hydra.
- **Downloading Configuration Data to a Hydra** Sending the Hydra *Logger for Windows* configuration to the Hydra instrument.
- **Uploading Configuration Data from a Hydra** Sending the Hydra instrument configuration to Hydra *Logger for Windows*.
- **Printing Configuration Data** Printing Hydra configuration data.

Editing Hydra Configuration Data 3-8.

Complete the following procedure to edit a Hydra configuration, which is saved in a setup file. This procedure assumes Hydra *Logger for Windows* is opened and the Main Window is displayed. The parameter descriptions in this procedure are brief. For detailed information, see Chapter 4 or press <F1> or any Help button for Online Help assistance.

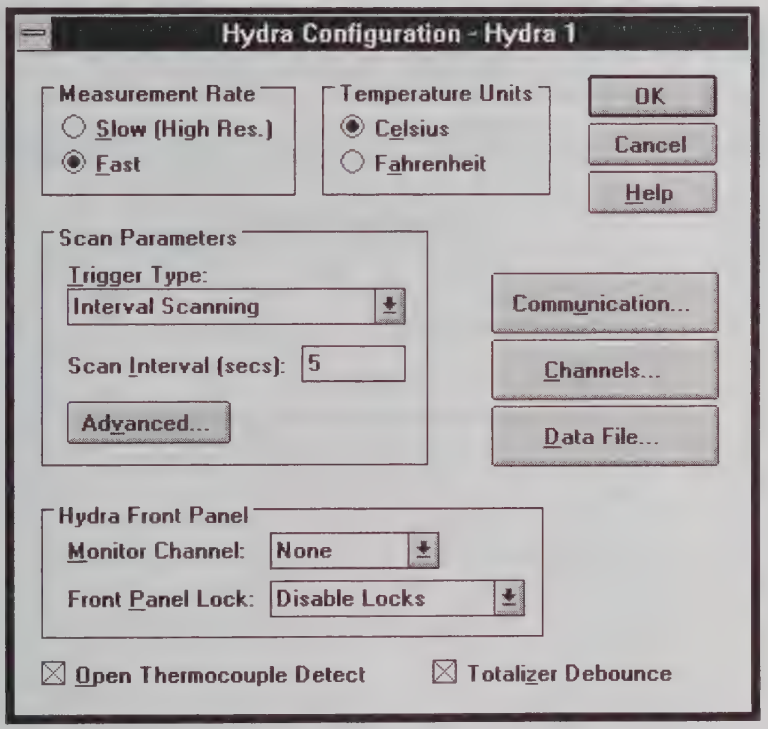
1. Select the Load Logger Setup command from the Setup menu to display the Open Setup dialog box (below).



2. Choose a setup file, e.g., `setup.stp`, from the File Name list as the destination for the Hydra configuration data. Click OK to return to the Main Window.

   (Hint: If only the `setup.stp` file is shown, choose it, click OK, and then immediately use the Save Logger Setup As command from the Setup menu to make a copy, e.g., `setup01.stp`. This procedure assumes `setup.stp` has the correct communication parameters, as discussed in Chapter 2.)

3. Click on the desired Hydra icon, e.g., Hydra (H1). Click the Edit Hydra Config button on the Button Bar (or double-click anywhere in the HYDRA CONFIGURATION area of the Main Window) to open the Hydra Configuration dialog box (below).



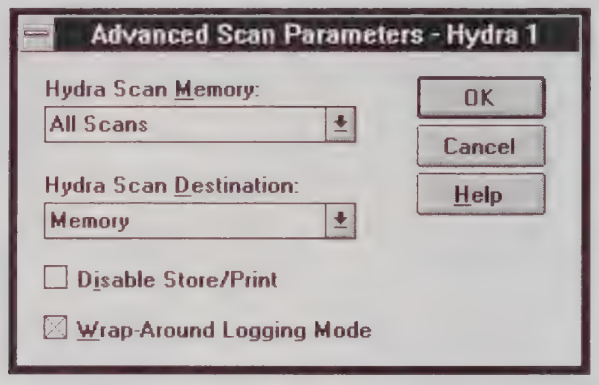
4. Make the following instrument-level selections, as required:

Measurement Rate Set rate of measurement scanning speed.
- **Slow** Higher resolution, slower scanning.
- **Fast** Lower resolution (1 digit), faster scanning.

Temperature Units
- **Celsius** Readings in °C.
- **Fahrenheit** Readings in °F.

Scan Parameters Set scanning conditions.
- **Trigger Type** Individual or in combinations.
  - **Interval Scanning** Triggers at Scan Interval rate.
  - **External** Triggers by external input applied to instrument.
  - **Monitor Alarm** Triggers by monitored alarm condition.
- **Scan Interval** Seconds between scans, maximum 38439.

Advanced How scans are saved at the Hydra instrument (dialog box).



Hydra Scan Memory Set conditions for Hydra scan memory. (Internal memory for the 2625A Data Logger, and memory card for the 2635A Data Bucket.)

All Scans Save all scans at the instrument.

Alarms Only Save scans only during alarm conditions.

Alarm Transitions Only Save scans only during alarm transitions.

Hydra Scan Destination Individual or in combinations.

Memory Save scans in Hydra internal memory.

Print Save scans by printing on a printer.

Card File Save scans on a memory card [2635A].

Disable Store/Print No scans are saved at instrument.

Wrap-Around Logging Mode Action for full memory.

Hydra Front Panel Set conditions for Hydra front panel operation.

Monitor Channel Select channel for Hydra monitoring.

Front Panel Lock Select Hydra lockout conditions.

Review Lock Lock all but arrow keys for review select.

Monitor Lock Lock all but up/down arrow keys for monitor select.

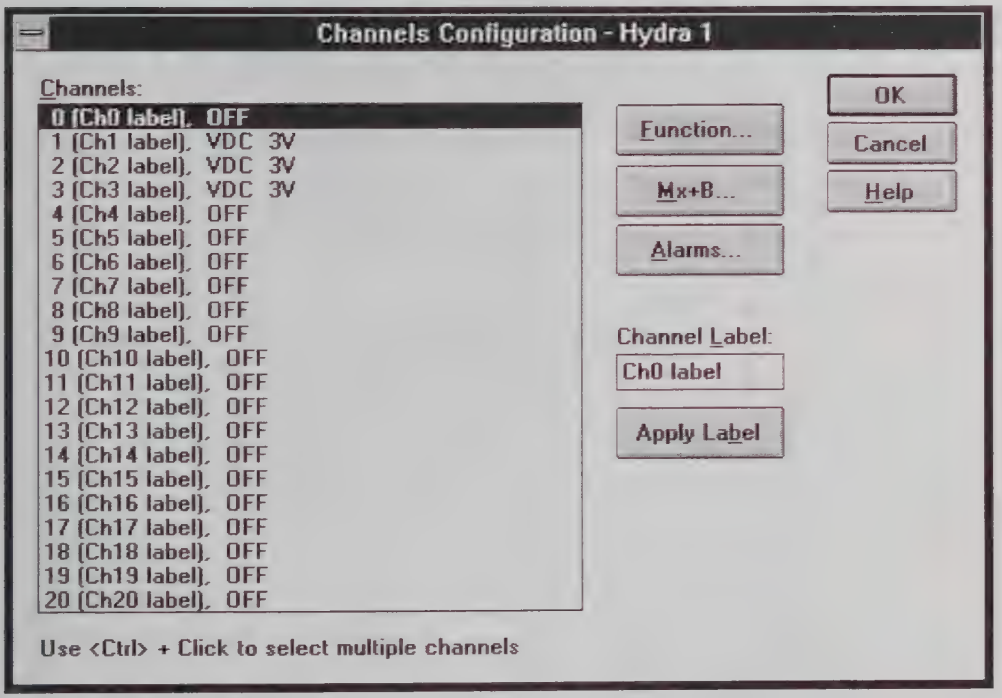
Configuration Lock Lock keys that change channel configurations (2635A Data Bucket only).

Disable Locks Lock all keys except scan key for single scans.

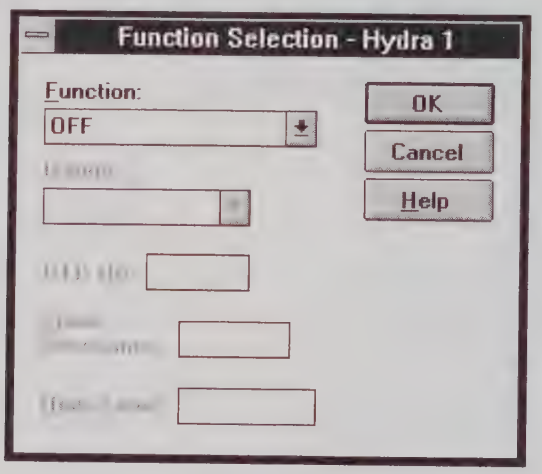
Open Thermocouple Detect Enable or disable.

Totalizer Debounce Enable or disable.

5. Click the Channels button to open the Channels Configuration dialog box (below). Configure the channels, as required. To configure multiple channels with the same configuration, select each using <Cntl> and mouse clicks.



6. Click the Function button to select the function of each Hydra channel using the Function Selection dialog box (below). Make the desired function and range selections, and related attributes, then click OK to return to the Channels Configuration dialog box.



Function

OFF No channel function.
VDC Volts dc.
VAC Volts ac.
OHMS-2W Ohms, 2-wire connection.
OHMS-4W Ohms, 4-wire connection (channels 1 to 10 only).
THERMOCOUPLE Thermocouple (not allowed on channel 0).
RTD-2W RTD, 2-wire connection.
RTD-4W RTD, 4-wire connection (channels 1 to 10 only).
FREQ Frequency.
CURRENT Current dc.

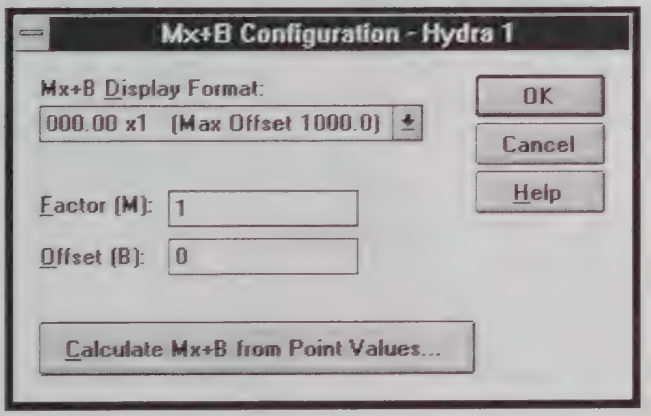
Range Select various ranges, depending on the Function.

RTD R0 (Resistance Temperature Detector) Enter RTD resistance at 0 °C.

Shunt Resistance (Current dc) Enter resistance of current shunt resistor.

Units Label Enter units label for measurement (often used with Mx+B).

7. Click the Mx+B button to configure the selected channel(s) for Mx+B scaling using the Mx+B Configuration dialog box (below). Make the desired scaling selections, then click OK to return to the Channels Configuration dialog box.



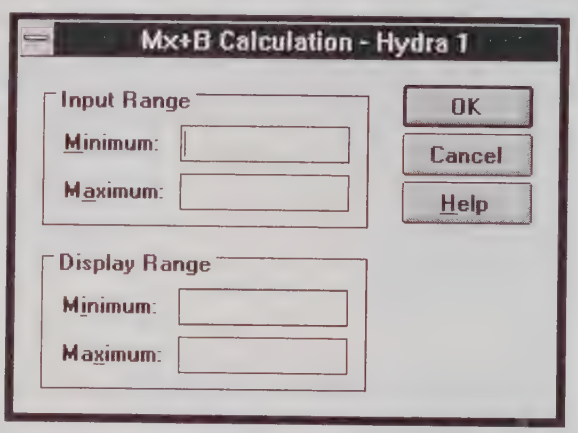
Mx+B Display Format Select desired format/offset range (below).

0.0000 m	(Max Offset 0.01)
00.000 m	(Max Offset 0.1)
000.00 m	(Max Offset 1.0)
0000.0 m	(Max Offset 1.0)
0.0000 x1	(Max Offset 10.0)
00.000 x1	(Max Offset 100.0)
000.00 x1	(Max Offset 1000.0)
0000.0 x1	(Max Offset 1000.0)
0.0000 k	(Max Offset 1.0E4)
00.000 k	(Max Offset 1.0E5)
000.00 k	(Max Offset 1.0E6)
0000.0 k	(Max Offset 1.0E6)
0.0000 M	(Max Offset 1.0E7)
00.000 M	(Max Offset 1.0E8)
000.00 M	(Max Offset 1.0E9)
0000.0 M	(Max Offset 1.0E10)

Factor (M) Select multiplier from -0.000,000,000,000,000,1 to +99,999,999.

Offset (B) Select offset from -999,999,999 to +999,999,999.

Calculate Mx+B from Point Values Opens the Mx+B Calculation dialog box (below). Enter values: click OK.



Input Range

Minimum Enter actual input range minimum.

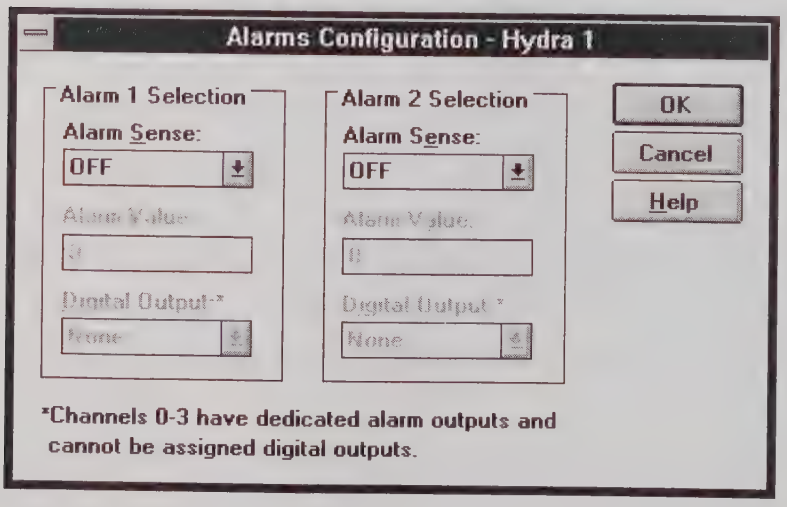
Maximum Enter actual input range maximum.

Display Range

Minimum Enter display (scaled) range minimum.

Maximum Enter display (scaled) range maximum.

8. Click the Alarms button to configure the selected channel(s) for alarm settings using the Alarms Configuration dialog box (below). Then click OK.



Alarm Sense

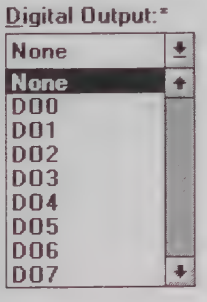
OFF No alarms.

HI High alarm.

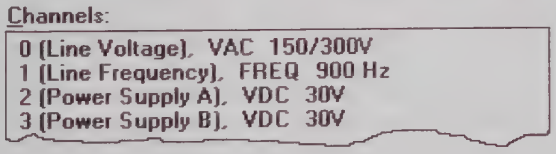
LO Low alarm.

Alarm Value Enter numeric value of alarm. If Mx+B is applied, enter scaled value.

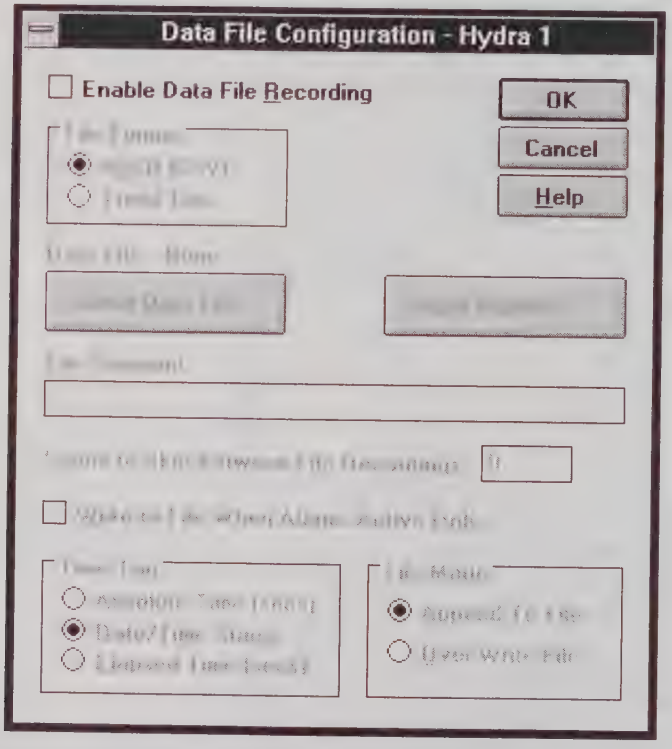
Digital Output Assign a DIGITAL I/O line with alarm (less channels 0 to 3).



9. Enter the Channel Label for each of the channels configured above by selecting the desired channel(s), entering the label, and selecting the Apply Label button. Click OK to return to the Hydra Configuration dialog box.



10. Click Data File button to open Data File Configuration dialog box (below). Each Hydra has a separate data file. Click OK after making selections.



Enable Data File Recording Enable or disable.

File Format

ASCII (CSV) Save in ASCII characters; comma separated variable.

Trend Link Save in Trend Link format (Trend Link must be installed).

Data File Click Select Data File button, enter or select a file name, click OK.

File Comment Enter a file comment, which appears in data file header.

Scans to Skip Between File Recordings Enter number of scans to skip between file recordings (maximum 65534).

Write to File When Alarms Active Only Enable or disable.

Time Tag ASCII (CVS) File Format only.

Absolute Time (secs) Seconds since Jan. 1, 1970.

Date/Time String String showing month, day, year, hour, minute, second.

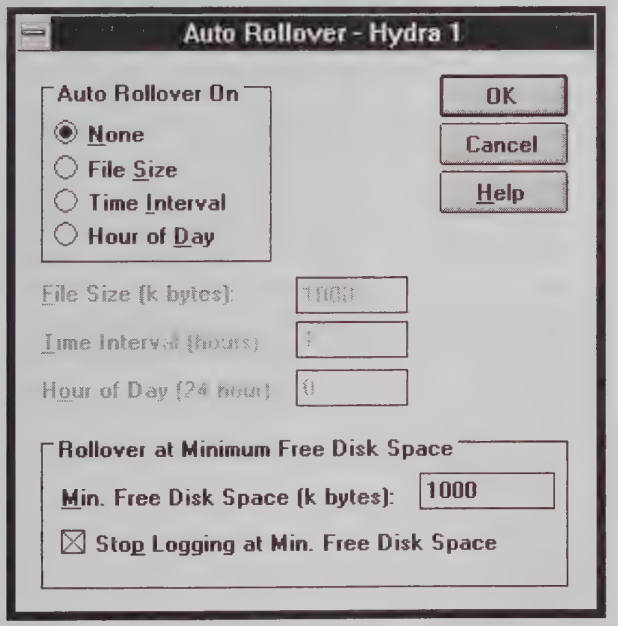
Elapsed Time (secs) Seconds since first scan of this logging period.

File Mode ASCII (CVS) File Format only.

Append To File Appends data in an existing file, if any.

Over-Write File Overwrites data in an existing file, if any.

Auto Rollover Click to open Auto Rollover dialog box (below). Make selections, then click OK.



Auto Rollover On

None No auto rollover.

File Size Size to close data file and open a new file.

Time Interval Elapsed time to close data file and open a new file.

Hour of Day Clock time to close data file and open a new file.

File Size (k bytes) Enter file size for auto rollover.

Time Interval (hours) Enter time interval for auto rollover.

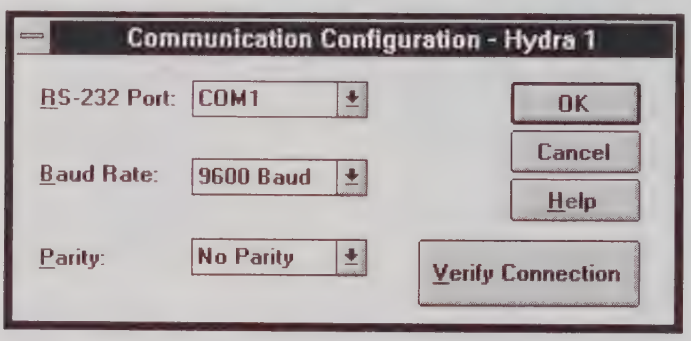
Hour of Day (24 hour) Enter clock time for auto rollover.

Rollover at Minimum Free Disk Space Trend Link file format only.

Min. Free Disk Space (k bytes) Enter bytes for auto rollover when hard disk has reached the minimum free disk space.

Stop Logging at Min. Free Disk Space Check to stop logging when hard disk has reached the minimum free disk space.

11. Click Communications button to open Communications Configuration dialog box (below). Configure these to match the selections made at the instrument front panel. Click OK after making selections.



RS-232 Port

COM1
COM2
COM3
COM4

Baud Rate

300 Baud
600 Baud
1200 Baud
2400 Baud
4800 Baud
9600 Baud
19.2k Baud (2635A Data Bucket only)
38.4k Baud (2635A Data Bucket only)

Parity

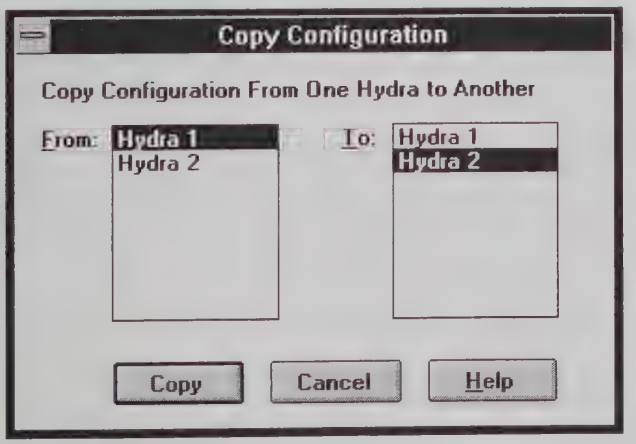
Even Parity
Odd Parity
No Parity

Verify Connection Click to verify communications.

12. Click OK in the Hydra Configuration dialog box to return to the Main Window, which summarizes the configuration entered for the selected Hydra. To assign a Hydra name other than Hydra 1 or Hydra 2, select the Describe Hydra command from the Setup menu. Edit the Hydra Name and/or Description.
13. Select the Save Logger Setup command from the Setup menu to save the configuration data. The configuration data does not automatically appear at the Hydra. The configuration is sent to the Hydra either at the start of logging (discussed in "Logging Operations") or when downloading (discussed in "Downloading Configuration Data to a Hydra").
14. Repeat this procedure for each Hydra on the Icon Bar.

Copying Configuration Data Between Hydras *3-9.*

To copy a complete Hydra configuration from one Hydra to another Hydra, select the Copy Configuration command from the Setup menu. If the command is dimmed, then there is only one Hydra on the Icon Bar. In the Copy Configuration dialog box (below), make the desired From: and To: Hydra selections. Click Copy. All configuration parameters are copied except the data file configuration, communication configuration, and Hydra Name.

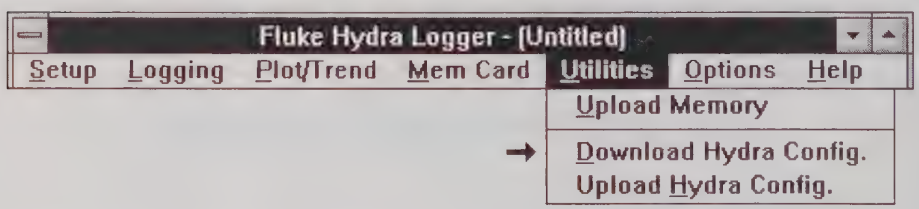


Downloading Configuration Data to a Hydra *3-10.*

The downloading feature sends configuration data from the Host Computer to a Hydra, configuring all the Hydra channels, alarms, Mx+B scaling, scan interval, etc. During logging operations, the default setting is for downloading to occur at the start of logging.

Complete the following procedure to download configuration data to a Hydra.

1. Click the Hydra icon in the Main Window for configuration data downloading. When downloading, it is this Hydra that receives the configuration data. If the displayed Hydra configuration is the configuration you want to download, proceed to Step 3; otherwise, continue to Step 2.
2. Create the configuration you want to download using the procedures in "Entering Hydra Configuration Data" above, or copy a configuration from another Hydra using "Copy Configuration Data Between Hydras" above.
3. Select the Download Hydra Config. command from the Utilities menu (below).



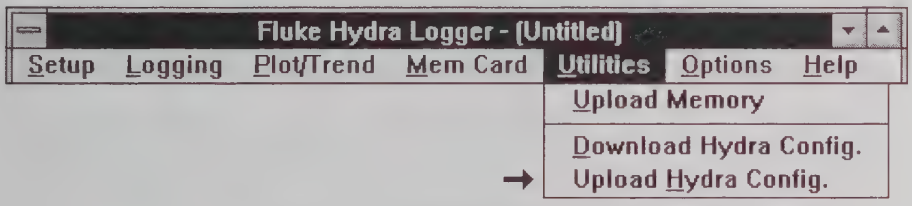
Uploading Configuration Data from a Hydra *3-11.*

The uploading feature retrieves configuration data from a Hydra, including all the channels, alarms, Mx+B scaling, scan interval, etc. Note that Units, Labels, and current channel configurations are lost during an upload.

Complete the following procedure to upload configuration data from a Hydra.

1. Click the desired Hydra icon in the Main Window. When uploading, this Hydra provides the configuration data.

2. Select the Upload Hydra Config. command from the Utilities menu (below)



3. Update channel labels and unit labels for the new uploaded configuration.
4. Update current measurement channels for the new uploaded configuration. Note that the Mx+B parameters for a current channel must be changed to 1.0 and 0.0 respectively.
5. To save this configuration, select the Save Logger Setup command from the Setup menu.
6. To copy this configuration to another Hydra, refer to "Copying Configuration Data Between Hydras."

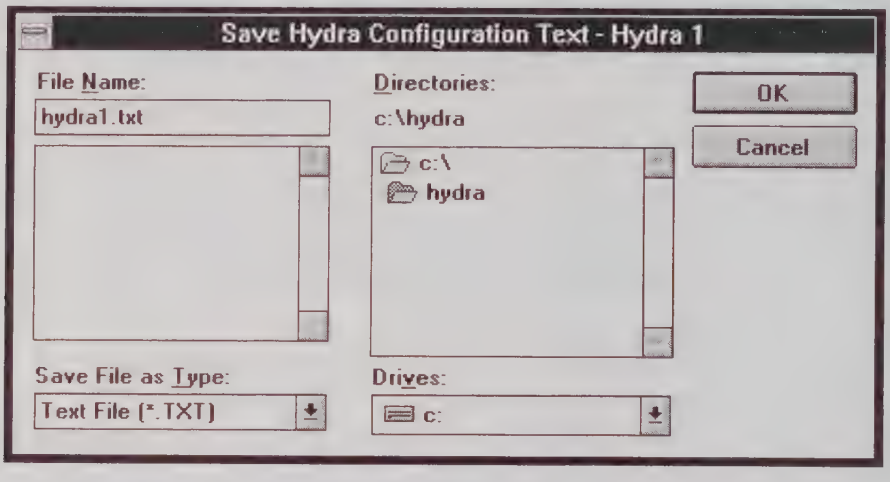
Printing Configuration Data *3-12.*

You can save Hydra configuration data as a text file, e.g., `hydra1.txt`. Like any text file, it can be opened in a word processing application or any text editor and then printed.

Complete the following procedure to print a configuration data record.

1. Click the desired Hydra icon in the Main Window.

2. Select the Save Hydra Config. Text command from the Setup menu, opening the Save Hydra Configuration Text dialog box (below).



3. Enter a text file name in the File Name box, e.g., `hydra1.txt`. Change the Directories, Drives, and Save File As Type as desired. Click OK.
4. Open the text file in any text editor or word processing application.
5. To use the Windows Notepad Accessory, open Notepad from the Accessories group of Program Manager. Select the Open command from the File menu. In the File Name box, enter the path and name of the text file saved in step 3 above, for example, `c:\hydra\hydra1.txt`. Click OK.
6. To print the file, select the Print command from the File menu. See Figure 3-2 for a printout of the Hydra default settings.

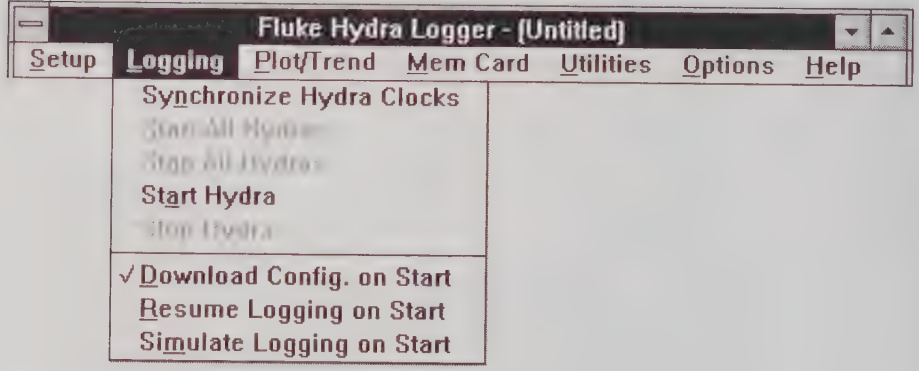
```
HYDRA CONFIGURATION - Hydra 1

Hydra Name:         Hydra 1
Description:        (None)
Trigger Type:       Interval Scanning
Scan Interval:      5 sec
Logging Mode:       Wrap-Around
Scan Memory:        All Scans
Scan Destination:   Memory
Communication:      COM1
Data File:          None
Scans Recorded:     NA
File Mode:          NA
File Format:        NA
Auto Rollover:      NA
Min Free Disk:      NA
Monitor Chan:       None
Front Panel Lock:   Disable Locks
Meas Rate:          Slow
Temp Units:         Celsius
OTC Detect:         Yes
Total Debounce:     Yes

Chan  Function   Range      Alarm 1    Alarm 2     Mx+B   Units        Label
0     OFF
1     VDC        3V         OFF        OFF         OFF    VDC          Ch1 label
2     VDC        3V         OFF        OFF         OFF    VDC          Ch2 label
3     VDC        3V         OFF        OFF         OFF    VDC          Ch3 label
4     OFF
5     OFF
6     OFF
7     OFF
8     OFF
9     OFF
10    OFF
11    OFF
12    OFF
13    OFF
14    OFF
15    OFF
16    OFF
17    OFF
18    OFF
19    OFF
20    OFF
```

Figure 3-2. Typical Hydra Configuration Text Printout

Logging Operations 3-13.

Logging operations consist of synchronizing Hydra clocks, starting and stopping the Hydras, either both together or individually, and monitoring the collection, display, and values of the measurement data. The information in this section assumes one or both Hydras are configured and ready for use. (Refer to the information covered earlier under "Hydra Configuration Procedures.")

Logging commands are in the Logging menu of the Main Window (below).



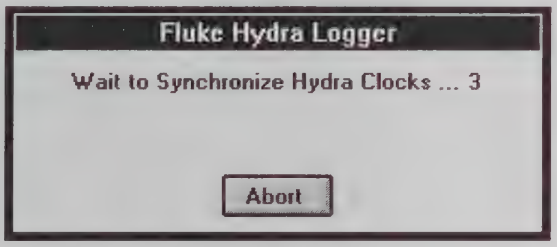
Starting and Stopping the Hydras 3-14.

Starting a Hydra begins the data collection, while stopping the Hydra ends data collection. Scan records are transferred from the Hydras to the Host Computer over the RS-232 interface.

Complete the following procedure to start and stop the Hydras.

1. Select the Synchronize Hydra Clocks command from the Logging menu. This synchronizes the Hydra clocks with each other and to the Host Computer system time. This is important for time tag data correlation in plotting and data processing.

If one or both of the instruments is a 2625A Data Logger, this operation may take up to 1 minute because the software must wait until an even minute in the host computer clock. If this delay is taking place, the following message is displayed:



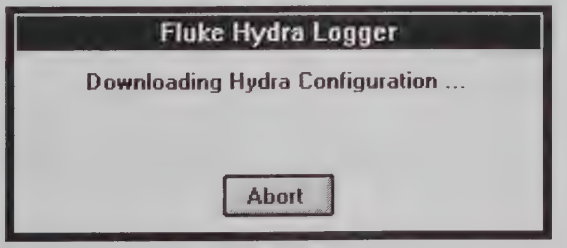
2. Check one of the following starting modes from the Logging menu:

   Download Config. on Start Hydra configurations are sent from the Host to the Hydras when the Hydras are started. (Default.)

   Resume Logging on Start Hydra configurations are retrieved from the Hydras when the Hydras are started, resuming operations.

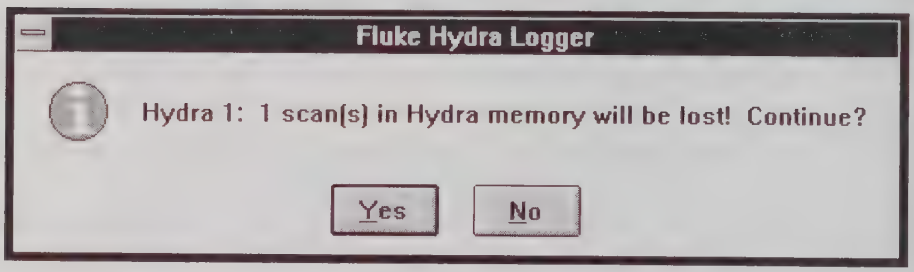
   Simulate Logging on Start There is no Hydra activity. Instead, the software generates pseudo data for training and testing.

3. Click the Start Hydra button from the Main Window button bar, or, if starting all Hydras at once, select the Start All Hydras command from the Logging menu. If you checked Download Config. on Start in Step 2, a Downloading... message is displayed (below). If there are communication problems, an error message is reported. (See Appendix C "Error Messages.")

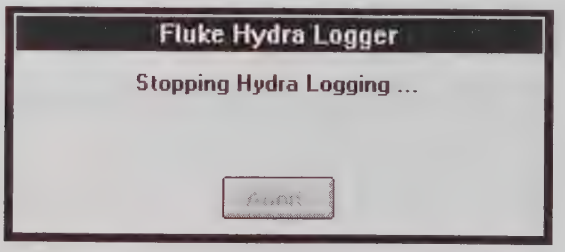


4. Verify the start of scanning with the Starting Hydra Logging message and a change in the Hydra icon with the appending of LOG (below). To stop scanning, proceed to step 5.

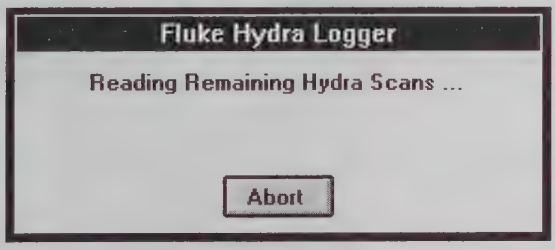
If a Hydra being started holds old measurement data in its scan memory, a warning message is displayed (below). If you select Yes to continue, the measurement data is cleared and logging started. To retrieve this data, select No and return to step 2. Check the Resume Logging on Start command and repeat steps 3 and 4.



5. To stop the Hydra, click the Stop Hydra button in the Main Window button bar, or, if stopping all Hydras at once, select the Stop All Hydras command from the Logging menu. Verify the message Stopping Hydra Logging (below).

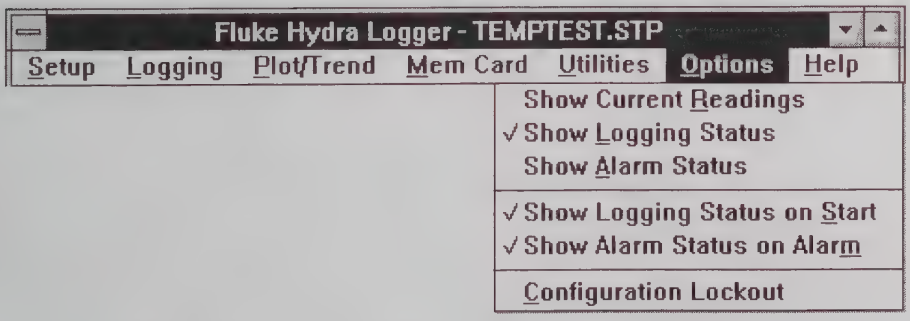


If the Hydra has measurement data remaining in scan memory, the Reading Remaining Hydra Scans message appears (below). If you click the Abort button to terminate, the next time the Hydra is started using the Download Config. On Start mode, the warning message in step 4 appears.



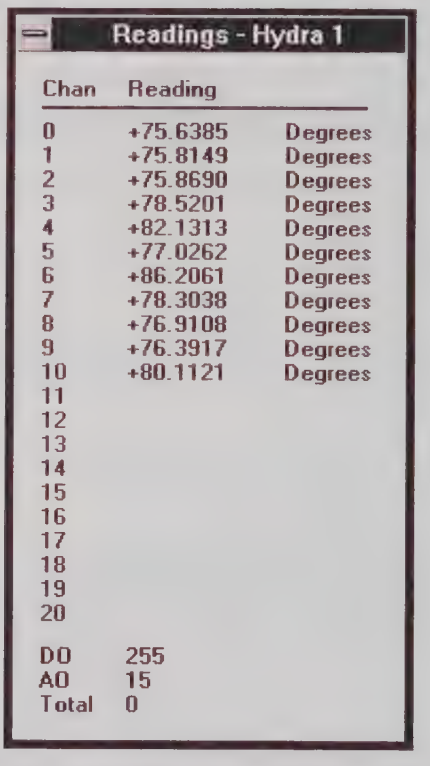
Monitoring Performance *3-15.*

The Options menu from the Main Window (below) provides performance monitoring options during logging. The options place a dialog window in the application to indicate logging and communications operation. Select the options that best support your logging operations.

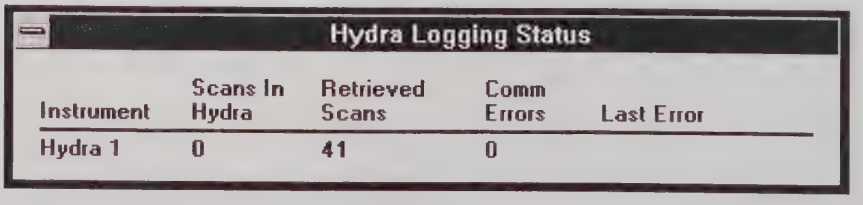

Fluke Hydra Logger - TEMPTEST.STP
Setup Logging Plot/Trend Mem Card Utilities Options Help
Show Current Readings
✓ Show Logging Status
Show Alarm Status
✓ Show Logging Status on Start
✓ Show Alarm Status on Alarm
Configuration Lockout

Show Current Readings Displays the channel measurements and the Digital I/O status (decimal 0 to 255 for lines 7 to 0), the Alarm status (decimal 0 to 15 for lines 3 to 0), and the Totalizer count for the selected Hydra.

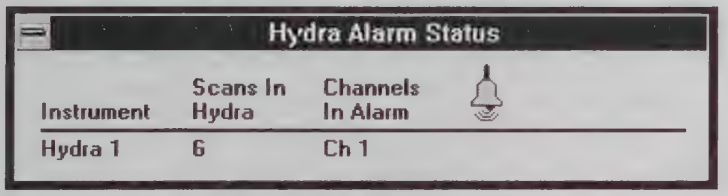
An example of Show Current Readings is shown below.



Show Logging Status Summarizes the communications link (below). Excessive Communication Errors indicate marginal communications between the Host Computer and the Instrument. If the Scans In Hydra count increases over time, scans are being collected in the Hydra faster than they can be retrieved (rare situation). In this situation, stop logging and set the scan interval to a larger value. Enable Show Logging Status on Start from the Options menu [default] for automatic display when starting Hydra logging.



Show Alarm Status Summarizes alarm status (below). During a logging run, an Alarm Bell appears red when a channel is currently in alarm (alarm channels listed in black type), and gray when a channel was in alarm (alarm channels listed in gray type). Enable Show Alarm Status on Alarm from the Options menu for automatic display.



Configuration Lockout Disables configuration-related commands in the Main Window Setup menu, including Create New Hydra, Delete Hydra, Describe Hydra, Edit Hydra Configuration (including the Edit button), and Copy Hydra Configuration.

Optimizing Performance *3-16.*

The rate at which measurement data is transferred from the instruments to the Host Computer is optimized by the following:

- **Minimize the Quick Plot** When using the Quick Plot feature, minimize the plot window to an icon and bring the plot up only when viewing the data.
- **No Real Time Trend Link Plot** When using the *Trend Link for Fluke* package, use historical plotting after the end of the data collection session. During data collection, either minimize Trend Link or don't run it at all.
- **Disable your "Screen Saver" feature** Screen savers may slow system throughput. Disable them when possible. (See the Windows Control Panel in the Main group of Program Manager.)
- **Disable Recording to Data Files** If you do not want to save data, be sure recording is disabled. (See "Editing Hydra Configuration Data" earlier in this chapter.)
- **Save Only Alarm Data** Saving data only when a channel is in alarm [Model 2625A only] increases system throughput as non-alarm data is not transferred. (See "Editing Hydra Configuration Data" earlier in this chapter.)

- **Avoid Unnecessarily Short Scan Intervals** Short scan intervals increase the amount of measurement data for transfer over the communications link. To speed system throughput, choose the longest possible interval. (See "Editing Hydra Configuration Data" earlier in this chapter.)

Simulated Logging 3-17.

Simulated logging is enabled by selecting the Simulate Logging on Start command from the Logging menu. A Hydra that is logging in the simulated mode has SIM appearing in the icon (below).

Using Dynamic Data Exchange (DDE) 3-18.

Dynamic Data Exchange (DDE) links Hydra *Logger for Windows* to other applications running under Windows. To use DDE, open the DDE client application and perform any setup necessary to access external data via DDE. Refer to Appendix D for information on DDE.

Processing the Data 3-19.

Data files created during logging may be saved in ASCII comma-separated variable (CSV) format in American Standard Code for Information Interchange (ASCII) text characters. Virtually all word processing, spreadsheet, and data management applications open, display, and print ASCII text files.

Data files may also be saved in Trend Link format if the optional *Trend Link for Fluke* package is installed. Trend Link is available bundled with the 26X5A-902 version of Hydra *Logger for Windows* or as a stand-alone option package. Refer to the *Trend Link for Fluke* Reference Manual for Trend Link file format information.

Refer to Figure 3-3 for an example of ASCII data file formatting. To process your data files, refer to one of the following topics:

- **Viewing and Printing ASCII Data Files** How to view and print your ASCII data files using the Windows Write Accessory.
- **ASCII Data Files and Other Applications** How to view and print your ASCII data files using other Windows applications, in particular, spreadsheets.

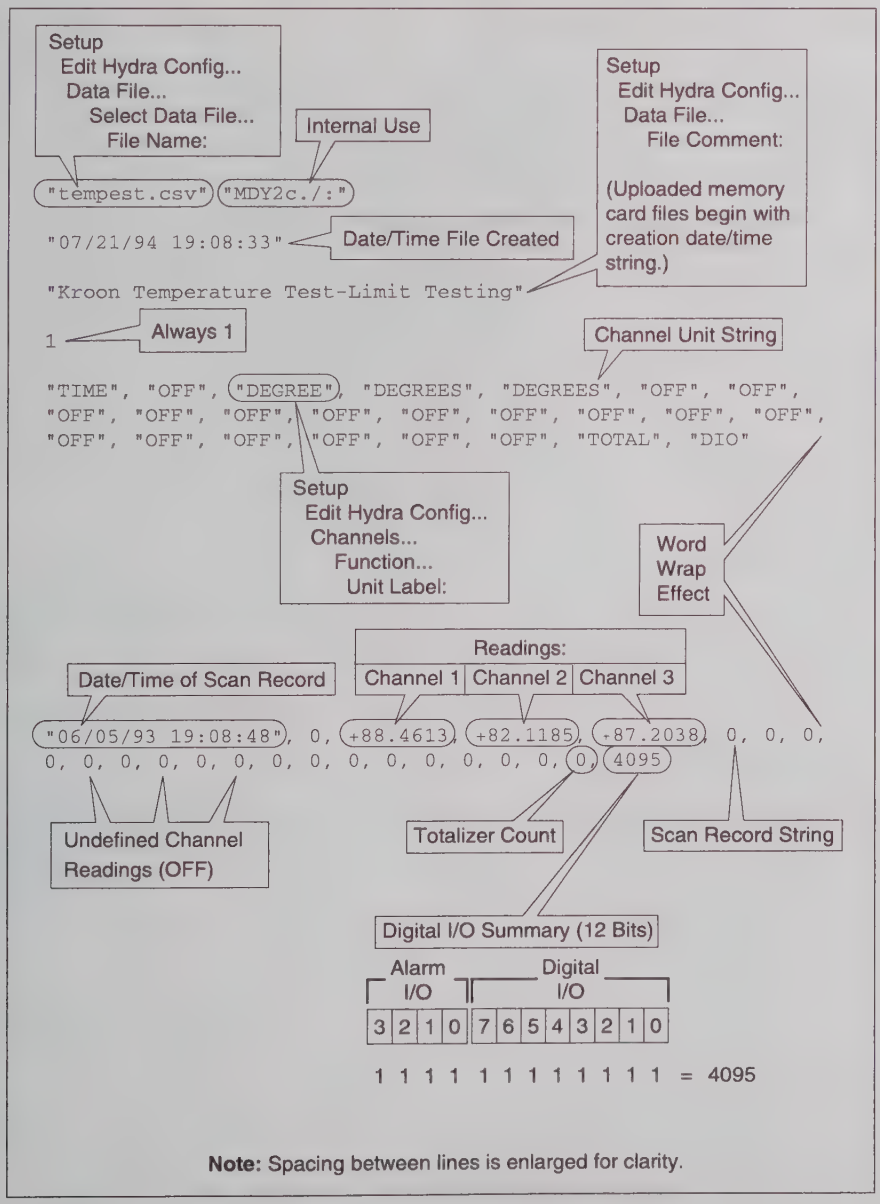

Setup
Edit Hydra Config...
Data File...
Select Data File...
File Name:
Internal Use
"tempest.csv" "MDY2c./:"
"07/21/94 19:08:33"
Date/Time File Created
Setup
Edit Hydra Config...
Data File...
File Comment:
(Uploaded memory card files begin with creation date/time string.)
"Kroon Temperature Test-Limit Testing"
1
Always 1
Channel Unit String
"TIME", "OFF", "DEGREE", "DEGREES", "DEGREES", "OFF", "OFF",
"OFF", "OFF", "OFF", "OFF", "OFF", "OFF", "OFF", "OFF", "OFF",
"OFF", "OFF", "OFF", "OFF", "OFF", "OFF", "TOTAL", "DIO"
Setup
Edit Hydra Config...
Channels...
Function...
Unit Label:
Word Wrap Effect
Readings:
Channel 1
Channel 2
Channel 3
Date/Time of Scan Record
"06/05/93 19:08:48", 0, +88.4613, +82.1185, -87.2038, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 4095
Undefined Channel Readings (OFF)
Totalizer Count
Scan Record String
Digital I/O Summary (12 Bits)
Alarm I/O
Digital I/O
3 2 1 0 7 6 5 4 3 2 1 0
1 1 1 1 1 1 1 1 1 1 1 1 = 4095
Note: Spacing between lines is enlarged for clarity.

Figure 3-3. ASCII Data File Formatting

Viewing and Printing Data Files 3-20.

You can view and print ASCII data files in their original .CSV format with the Windows Write or Notepad Accessory or any word-processing application that opens text files. The procedure below assumes the use of the Write Accessory. The data is printed in strings, without formatting. Add your own formatting as desired.

1. Open Write from the Accessories group of Program Manager.
2. Select the Open command from the File menu. In the File Name box, enter the path and name of the data file, for example, `c:\hydra\temptest.csv`. Click OK. Select No Conversion in response to the "Do you want to convert this file to Write format?" to maintain this as a text file.
3. Observe the text file appears in the format shown in Figure 3-3.
4. To print the file, select the Print command from the File menu. After printing or viewing, select the Exit command from the File menu.

Data Files and Other Applications 3-21.

Viewing and printing Hydra *Logger for Windows* ASCII data files is enhanced by processing the data in spreadsheet programs, which present the data in columns. Spreadsheets can also present the data in graphs and plots. Complete the following procedure to view and print a data file in spreadsheet format.

1. Open the spreadsheet application in Program Manager.
2. There are two general methods for opening files. Select one of the methods below that suits your spreadsheet application.
   a. Select the Open command from the File menu. In the File Name box, type the complete path to the Hydra *Logger for Windows* data file you wish to display, for example, `c:\hydra\temptest.csv`.
   b. Select the Import From command from the File menu. In the File Name box, type the complete path to the Hydra *Logger for Windows* data file you wish to display, for example, `c:\hydra\temptest.csv`.
3. Adjust the spreadsheet column width and other formatting variables to display the data in the desired format.
4. Print the data as desired. (Refer to your spreadsheet documentation.)

Using Quick Plot 3-22.

Quick Plot provides a graphical indication of the measurement trend during Hydra scanning. Only one Quick Plot window may be running at one time, displaying up to eight traces from any mix of Hydras and Hydra channels. An example is shown in Figure 3-4. The plot image may be saved using Windows clipboard (`*.clp`) and Paintbrush (`*.bmp`) accessories, and pasted into any application that accepts images in bitmap format. A plot similar to the Quick Plot may be created from a data file using other Windows applications, such as a spreadsheet or a plotting package like *Trend Link for Fluke*.

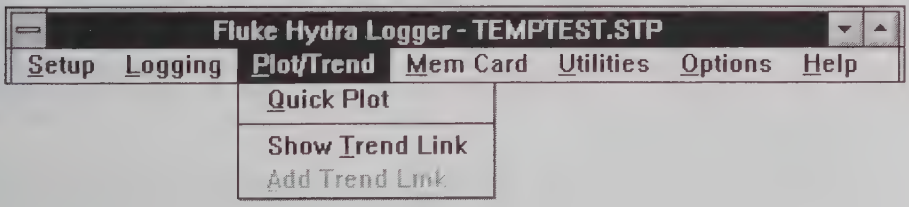
For customization of plot traces, line types include eight symbols, eight colors, and six line styles.

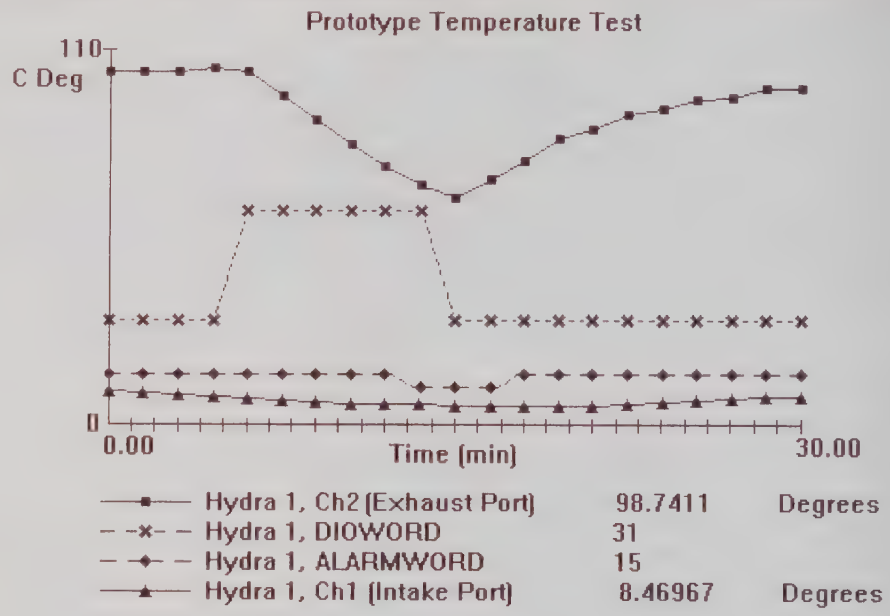
The following topics are covered in this section:

- **Showing and Configuring the Quick Plot.**
- **Starting and Stopping the Quick Plot.**
- **Saving and Printing the Quick Plot.**
- **Getting the Right Quick Plot Look.**
- **Creating Plots and Graphs from a Data File.**

Showing and Configuring the Quick Plot 3-23.

Quick Plot commands are in the Logging menu of the Main Window (below).





About This Figure...

The numeric display of readings is always from the most recent scan. The plot window Options... menu provides an option to show or hide the plot legend and readings.

DIOWORD is the decimal equivalent of the status of the Hydra Digital I/O lines 7 to 0 (available at the Hydra rear panel DIGITAL I/O connector). If no lines are set, the I/O lines are 11111111 (decimal 255). In this example, I/O lines 6 and 7 are grounded and I/O line 5 is connected to the contacts of a test toggle switch, toggling the I/O between 00111111 (63) and 00011111 (31).

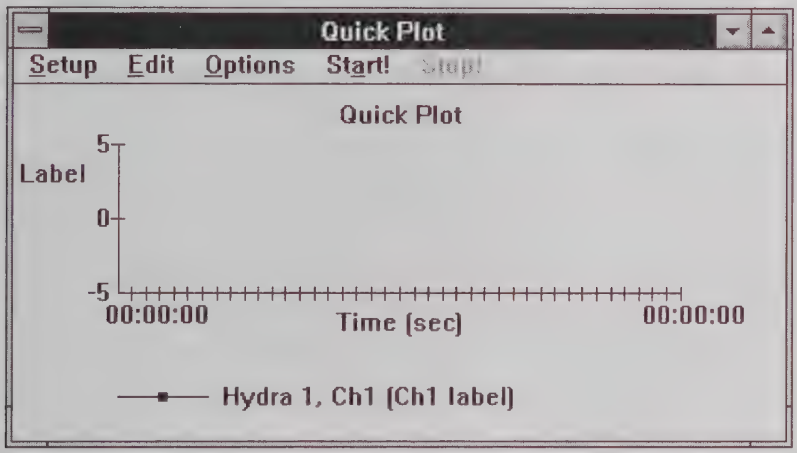
ALARMWORD is the decimal equivalent of the status of the Hydra dedicated Alarm lines (available at the Hydra rear panel ALARM OUTPUTS connector). When no alarms are set for channels 3 to 0 (the dedicated channels), the alarm lines are 1111 (decimal 15). In this example, Hydra 1, Channel 2, has a Low Alarm of 75° C. When Channel 2 reaches 75° C, the alarm lines change from 1111 (15) to 1011 (11). When the alarm clears, the lines return to 1111 (15).

A channel in alarm displays measurements in red in the numerical display beneath the plot. Plots from Hydras with different scan intervals create traces with points closer together or farther apart on the plot.

Figure 3-4. Typical Quick Plot

Complete the procedure below to show and configure the Quick Plot. The Quick Plot can be started at any time, even during data collection.

1. Select the Quick Plot command from the Plot/Trend menu, opening a Quick Plot window (below).



2. Customize your plot as shown by example in Figure 3-5. The readings in the legend appear only when the plot has been started. All selections, except for the channel label and units label, are made from the Plot window menus.

Starting and Stopping the Quick Plot *3-24.*

Complete the procedure below to start and stop the Quick Plot. The Quick Plot operates independently from the Start Hydra and Stop Hydra commands made in the Main Window. When you start the Quick Plot, which always clears previous traces on the plot, it continues to run until you command it to stop. The Quick Plot can be minimized to an icon by clicking the Minimize button (down arrow) in the top-right corner of the plot window. Plot images can be captured at any time and printed out (see "Printing Quick Plots" below).

1. Select Quick Plot from the Plot/Trend menu of the Main Window.
2. At the top of the Quick Plot window, click Start! to start the plot. If a full-screen display is desired, click on the Maximize button (up arrow) at the top-right corner of the plot window. You can turn the Show Symbols feature on and off at any time from the Options menu. Each symbol represents a data point, and data points are connected with the selected Line Type (see Figure 3-5).

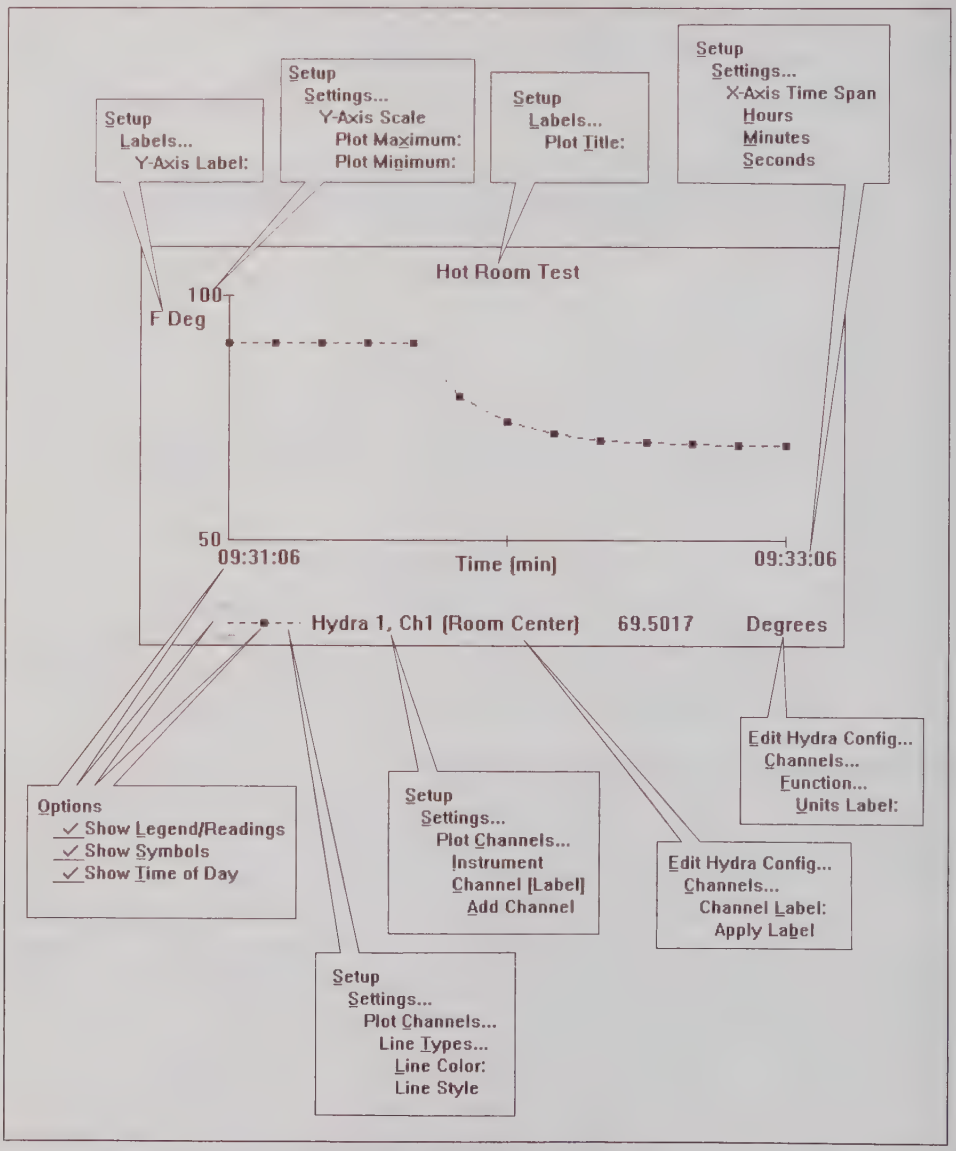


Figure 3-5. Configuring Quick Plot

To save the plot image at any time, select Copy Image from the Edit menu. This copies the plot into the Windows Clipboard (see "Printing Quick Plots" below). When the Edit menu is open, the plot pauses (no data is lost). Data does not appear on the plot unless the Hydras associated with the plot channels are started. The Hydras may be started before or after starting the plot.

3. To close the plot, double-click on the Control-menu box at the top-left corner of the plot window, or select Close Plot from the plot Setup menu. Any plotting that is in progress continues.
4. To retrieve a plot after it has been closed, select the Quick Plot item from the Plot/Trend menu of the Main Window.
5. To stop the plot, show the plot (see step 4) and click the Stop! button.

   To save the plot image, click Edit and then Copy Image. This saves the plot in the Windows Clipboard. Be sure to process the graphic as soon as possible because any other use of the Clipboard overwrites the graphic.

   If you click Start! again, the plot clears and begins.
6. To clear the plot from the screen, select Close Plot from the plot Setup menu.

Saving and Printing the Quick Plot 3-25.

The plot image in the Clipboard may be pasted immediately into another application or saved and recalled for processing at a later time.

Complete the procedure below to save, recall, and print a Quick Plot image using Windows.

Saving the Quick Plot Image

1. While in the plot window, select Copy Image from the Edit menu. The plot image is saved in the Windows Clipboard feature.
2. Open Clipboard Viewer from the Main group of Program Manager.
3. Select Save As from the File menu. In the File Name box, select a path and name, e.g., `c:\hydra\plot22.clp`. Click OK.

Recalling the Quick Plot Image

1. Open Clipboard Viewer from the Main group of Program Manager.

2. Select Open... from the File menu. In the File Name: box, select a path and name, e.g., `c:\hydra\plot22.clp`. Click OK.
3. The recalled image in Clipboard may now be pasted into applications and accessories that accept graphics in bitmap format.

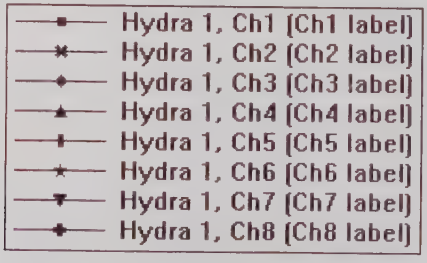
Printing the Quick Plot Image

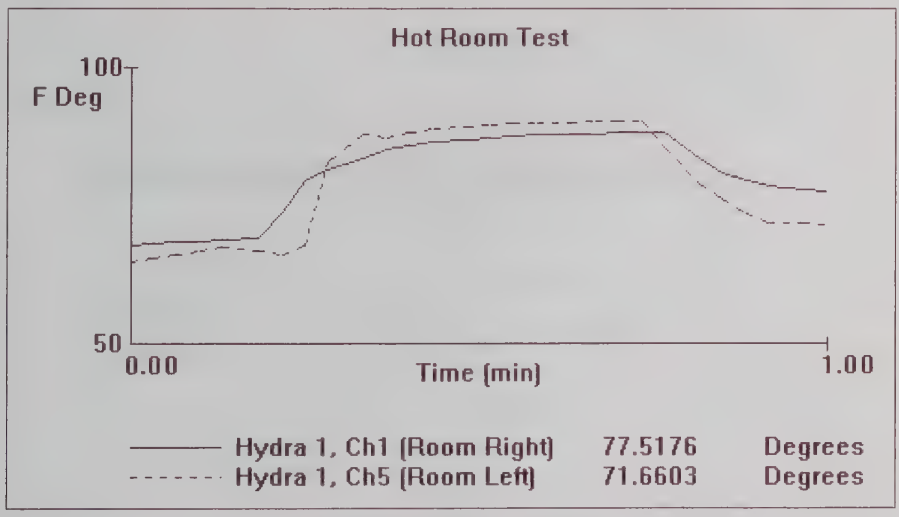
1. Place the desired Quick Plot image in the Clipboard (see above).
2. Open Paintbrush from the Accessories group of Program Manager.
3. Select Paste from the Edit menu. If the Paintbrush screen is too small for the paste, select the Image Attributes command from the Options menu to resize the screen, then repaste the image. (See your Windows documentation for instructions on using Paintbrush.)

   Quick Plot images can be enhanced using the Paintbrush tools, for example, to add text, grid lines, and comments. An example is shown in Figure 3-6.
4. Select Print from the File menu to print the image.
5. To save the image, select Save As from the File menu. Select a path and name, e.g., `c:\hydra\plot22.bmp`. Click OK.

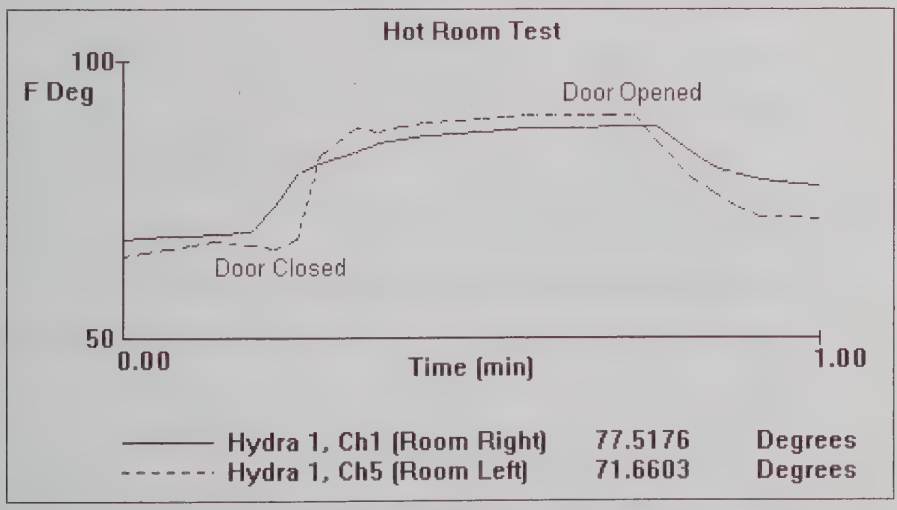
Getting the Right Quick Plot Look *3-26.*

A Quick Plot data point is connected to the next data point with the selected Line Type, and marked with a Symbol (if selected) (see Figure 3-5). There are eight different symbols, one for each of the eight plot traces (below).


Hydra 1, Ch1 [Ch1 label]
Hydra 1, Ch2 [Ch2 label]
Hydra 1, Ch3 [Ch3 label]
Hydra 1, Ch4 [Ch4 label]
Hydra 1, Ch5 [Ch5 label]
Hydra 1, Ch6 [Ch6 label]
Hydra 1, Ch7 [Ch7 label]
Hydra 1, Ch8 [Ch8 label]



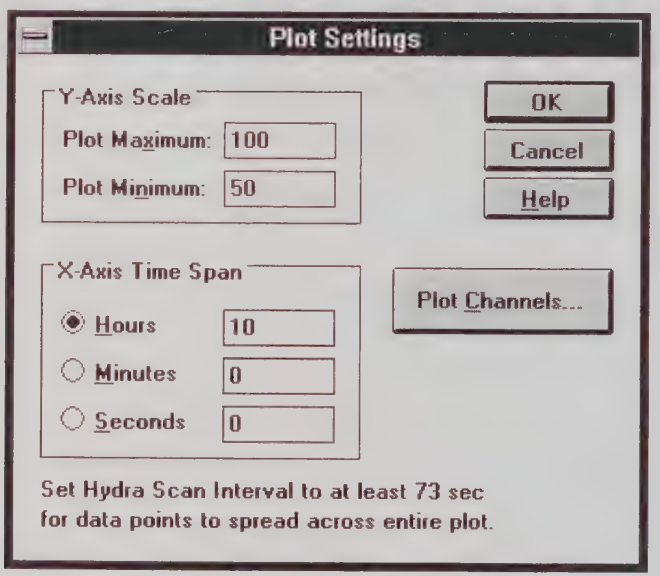
Original Quick Plot Image



Enhanced Quick Plot Image Using the Paintbrush Accessory

Figure 3-6. Printing and Enhancing a Quick Plot Image

When a Quick Plot time span is selected, the minimum Hydra Scan Interval for a full-scale plot is calculated and displayed. For example, a plot time span of 10 hours calculates a minimum recommended Hydra scan interval of 73 seconds (see below). Typical plot characteristics are shown in Figures 3-7 and 3-8.



Creating Plots and Graphs from a Data File *3-27.*

You can create a plot or graph of a data file by using most spreadsheet applications. Adapt the following procedure to your spreadsheet program..

Complete the following procedure to create a plot or graph from an ASCII file.

1. Open the spreadsheet application from Program Manager.
2. There are two general methods for opening files. Select one of the methods below that suits your spreadsheet application.
   a. Select the Open command from the File menu. In the File Name box, type the complete path to the Hydra *Logger for Windows* data file you wish to display, for example, `c:\hydra\temptest.csv`.
   b. Select the Import From command from the File menu. In the File Name box, type the complete path to the Hydra *Logger for Windows* data file you wish to display, for example, `c:\hydra\temptest.csv`.

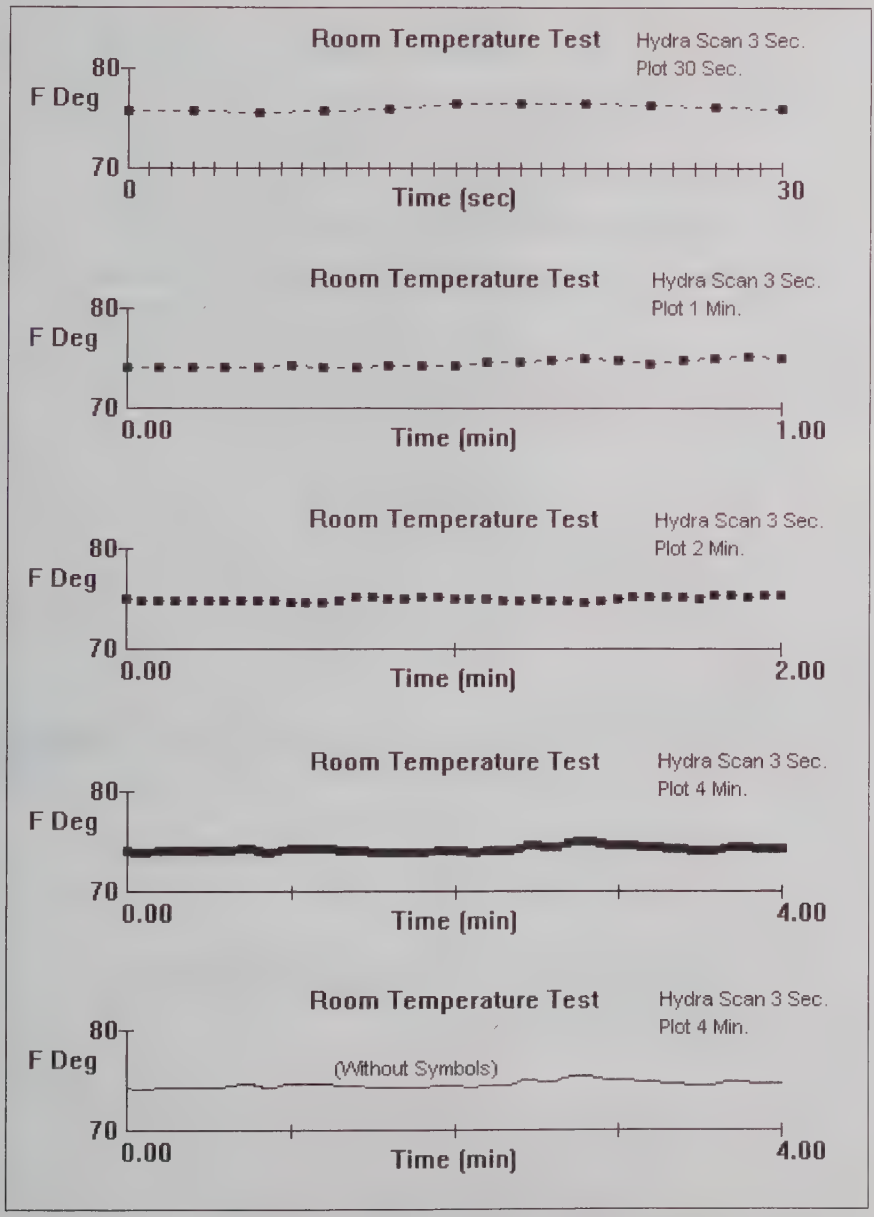


Figure 3-7. Quick Plot Characteristics

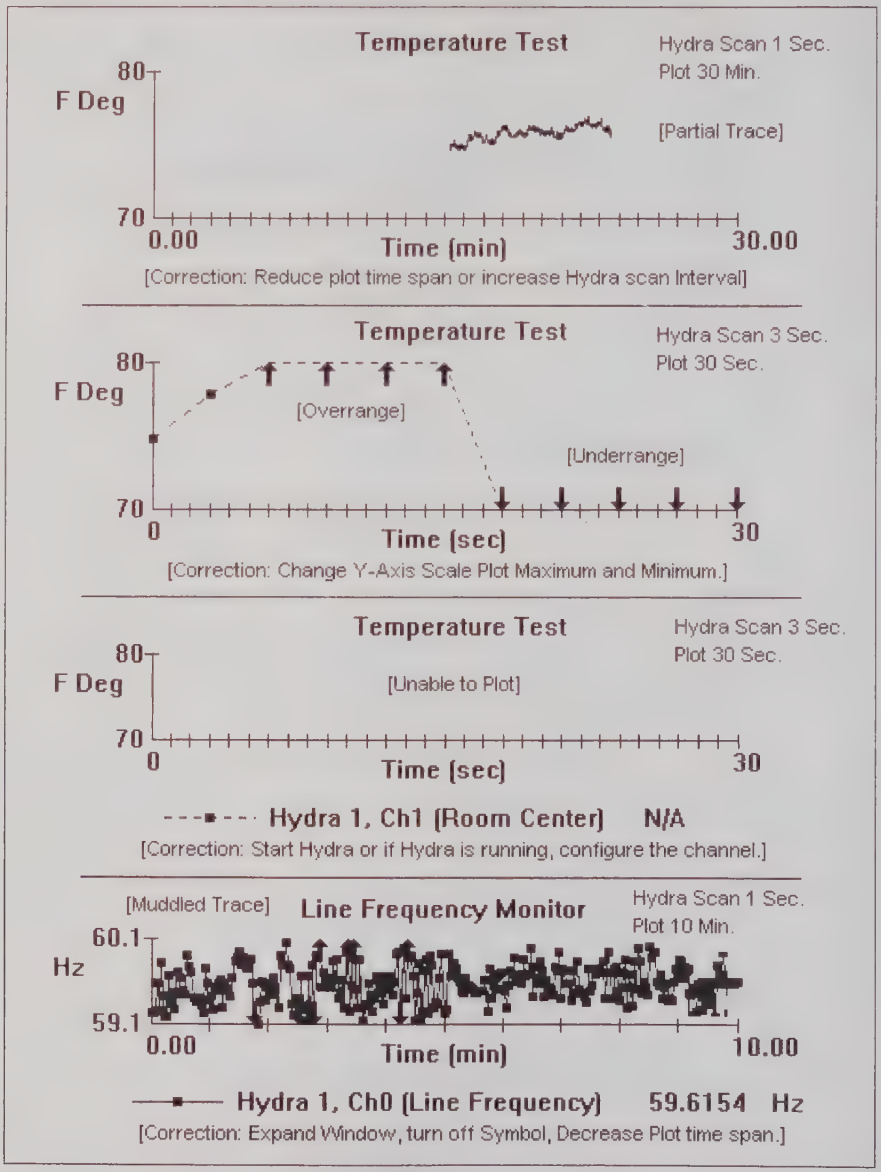


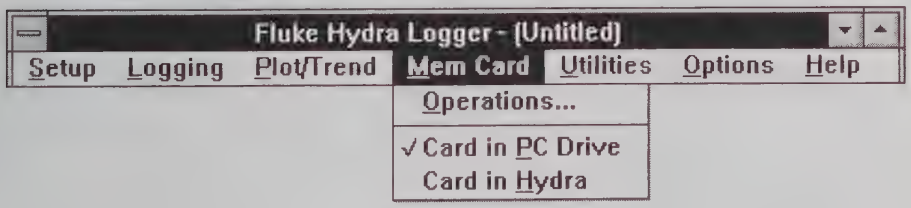
Figure 3-8. Troubleshooting the Quick Plot

3. Adjust the spreadsheet column width and other formatting variables to display the data in the desired format.
4. Highlight the cells you wish to plot or graph. Include the far-left column containing Hydra time stamps to plot data versus time.
5. From the spreadsheet toolbar or menu, open the graph/plot utility.
6. Open a plot/graph window in the spreadsheet to display the plot/graph.
7. Select the desired plot or graph format, and enter titles, axis labels and other formatting features as desired.
8. Print the plot/graph from the spreadsheet or copy and paste it into word processing, Paintbrush accessory, Clipboard accessory, or any application that accepts images in bitmap format.

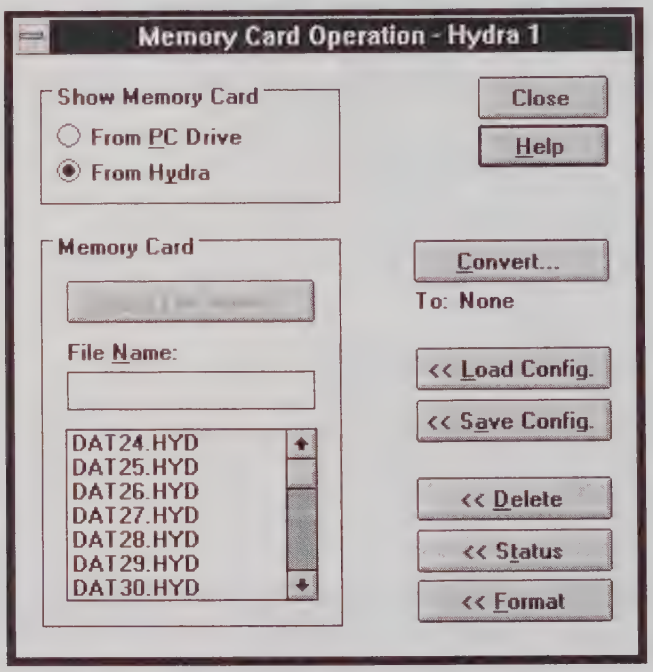
Memory Card File Management *3-28.*

The 2635A Data Bucket supports the use of PCMCIA memory cards for storage of data files and configuration files. This section describes the functions in Hydra *Logger for Windows* that support management of the files on these memory cards.

The Memory Card Management functions are in the Memory Card Operation dialog box that is selected under the Mem Card menu (below).



Select the Operations command from the Mem Card menu to open the Memory Card Operation dialog box (below), where memory card management functions are selected. (If the memory card is in a Hydra, select the Hydra on the Icon Bar before selecting the Operations command.)



To convert and copy a memory card data file from the card to a Host Computer file, select from the following.

Show Memory Card

From PC Drive Memory card is in a host computer drive.

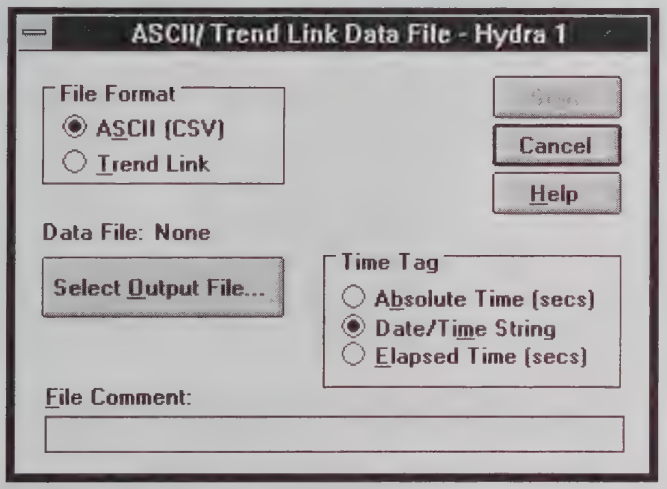
From Hydra Memory card is in a Hydra drive.

Memory Card

Select File Name Button to select file name; for host computer drive.

File Name List box, for Hydra drive, where files are always `DATnn.HYD` (data files) or `SETnn.HYD`, (setup files) where nn is 00 to 99.

Convert Button to open ASCII/Trend Link Data File dialog box shown below, where you make selections then press the Start button.



File Format

ASCII (CSV) Comma-separated variable ASCII characters.

Trend Link Select only when Trend Link is installed.

Data File Selected name of conversion output file.

Select Output File Button for selecting name for conversion output file.

File Comment Enter a file comment, which appears in data file header.

Time Tag (ASCII (CSV) files only)

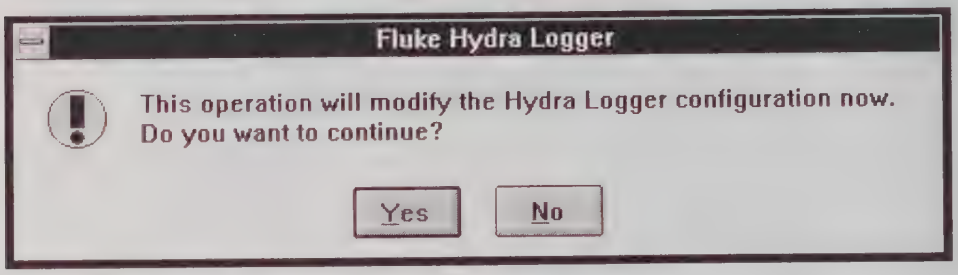
Absolute Time (secs) Seconds since Jan. 1, 1970.

Date/Time String String showing month, day, year, hour, minute, second.

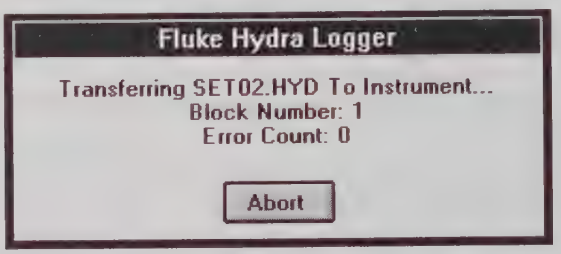
Elapsed Time (secs) Seconds since first scan of this logger period.

To Selected data file name for memory card conversion.

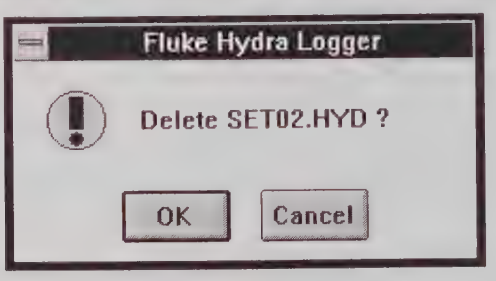
Load Config. Button to load a selected `SETxx.HYD` configuration from memory card to host computer, including a warning message (below).



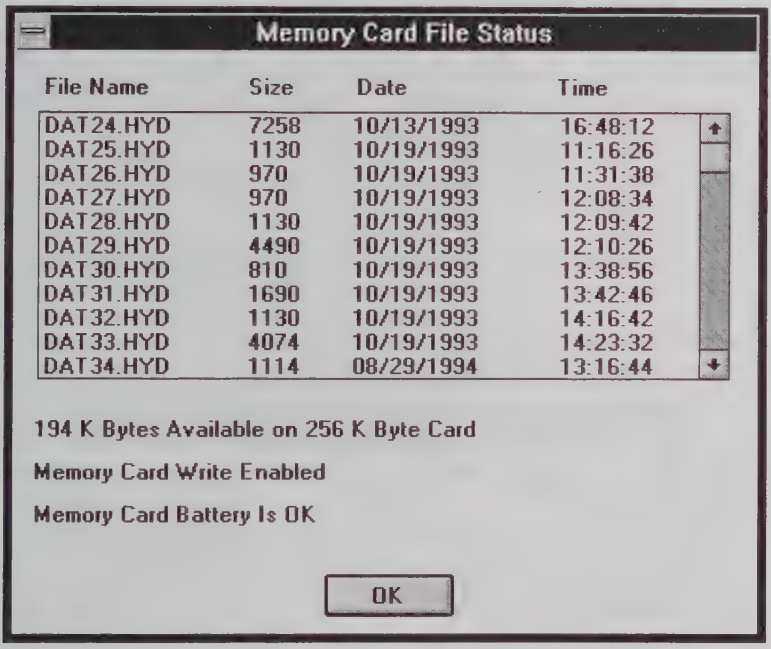
Save Config. Button to save a Hydra instrument configuration on memory card as `SETxx.HYD` (name in File Name box where xx is 00 to 99), including a transfer message (below).



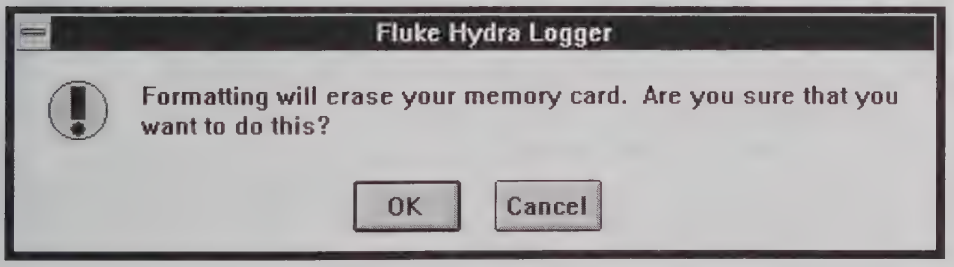
Delete (Hydra memory card only.) (For PC drive, use Windows File Manager.) Button to delete name in File Name box, including a warning message (below).



Status Button to show status of Hydra memory card files (below is typical).



Format (Hydra memory card only.) (For PCs, use memory card utility program.) Button to format Hydra memory card, with warning message (below).

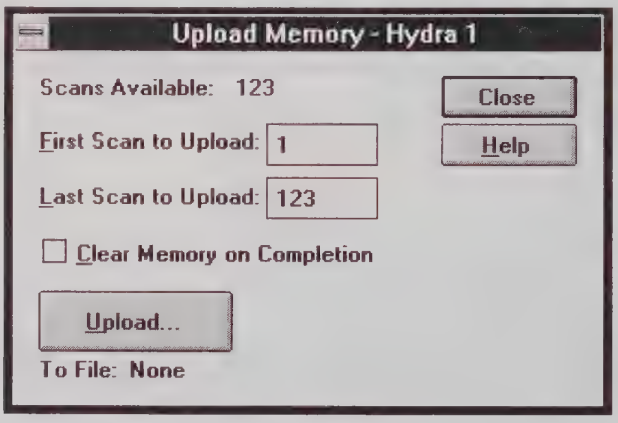


Logging Memory Upload 3-29.

The 2625A Data Logger instrument supports storing of up to 2047 scans of measurement data in an internal logging memory, and the 2635A Data Bucket supports storing of up to 100 scans of measurement data. This data may be transferred to the host computer and recorded in a data file.

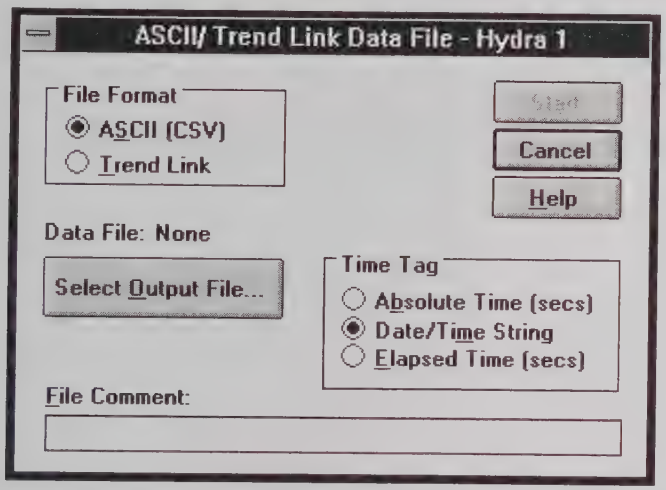
Complete the following procedure to upload measurement data from a Hydra internal memory.

1. Select the instrument containing the logging memory on the Instrument Icon bar.
2. Select the Upload Memory command from the Utilities menu, opening the Upload Memory dialog box (below is typical).



3. Enter the first scan to upload in the First Scan to Upload box and the last scan to upload in the Last Scan to Upload box.
4. To upload and then clear the memory of the uploaded scans, check the Clear Memory on Completion box.

5. Click the Upload button to open the ASCII/Trend Link Data File dialog box.



File Format

ASCII (CSV) Comma-separated variable ASCII characters.

Trend Link Select only when Trend Link is installed.

Data File Selected name of conversion output file.

Select Output File Button for selecting name for conversion output file.

File Comment Enter a file comment, which appears in data file header.

Time Tag (ASCII (CSV) files only)

Absolute Time (secs) Seconds since Jan. 1, 1970.

Date/Time String String showing month, day, year, hour, minute, second.

Elapsed Time (secs) Seconds since first scan of this logger period.

6. Once a file name has been selected, click the Start button to upload the memory into the selected data file.

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Reference for Hydra Logger for Windows

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Introduction 4-1.

This chapter is a reference guide to the menus and dialog boxes of Hydra *Logger for Windows* software. Each dialog box contains various types of controls for performing functions, selecting parameters, and entering file names. Press the <F1> Help key, or select the Help button in the current dialog box or when a menu item is highlighted for specific information about an operation.

Main Window 4-2.

The Main Window (Figure 4-1) is displayed when Hydra *Logger for Windows* is opened from the Fluke Hydra Logger group of Program Manager. The Main Window is divided into the following portions (from top to bottom):

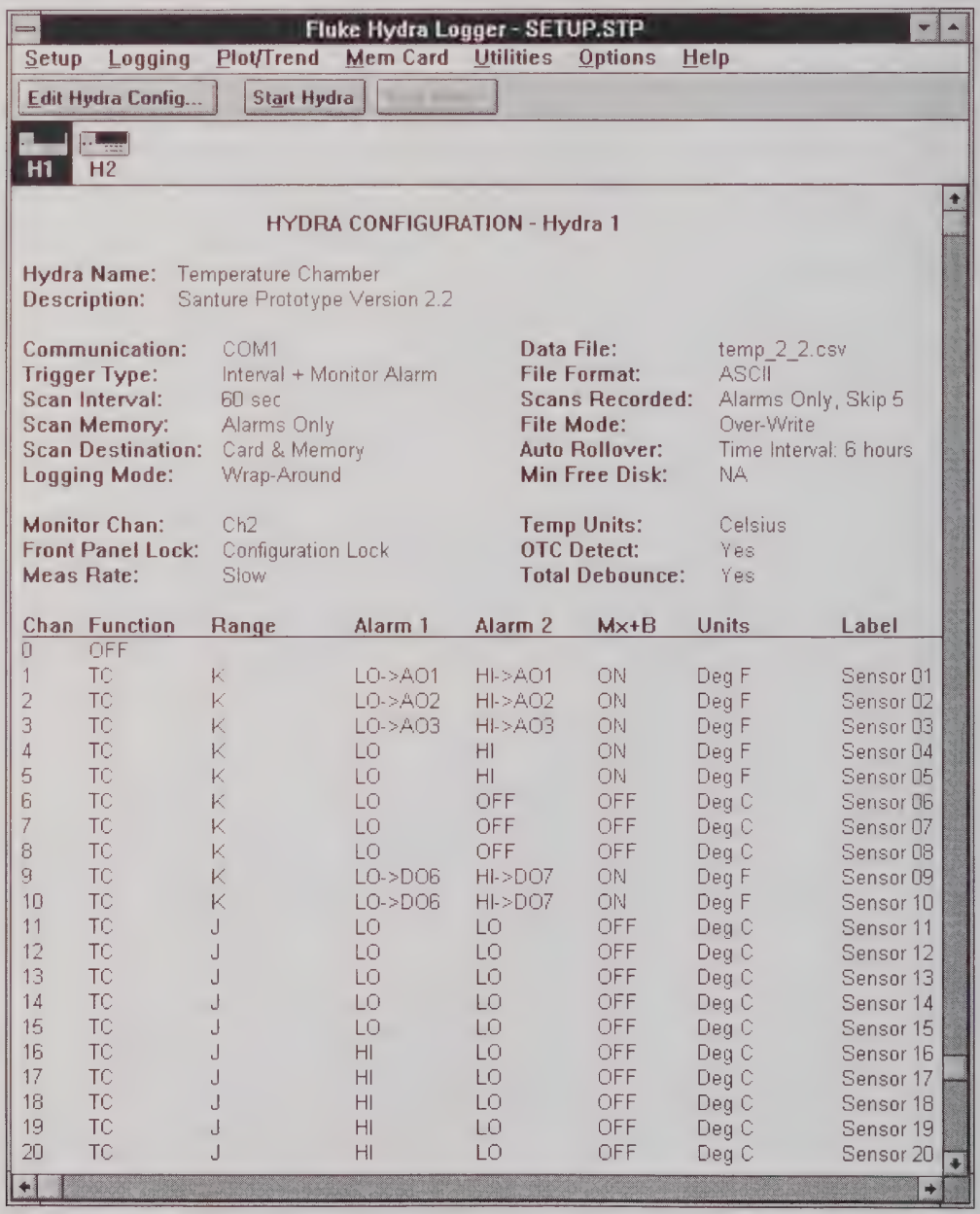
Title Bar The Title Bar displays the name of the active setup file, e.g., `SETUP.STP`, or it displays `(untitled)` if no setup file is selected.

Menu Bar The menu bar allows you to select Hydra *Logger for Windows* menu commands for setting up the Hydra configuration, controlling scanning and data collection, displaying Quick and Trend Link plots, uploading and downloading Hydra configuration, showing status windows, locking out configuration changes, managing Data Bucket memory card files, uploading Data Logger logging memory data, and displaying help.

Button Bar The Button Bar provides buttons for three commonly selected functions: Edit Hydra Config., Start Hydra, and Stop Hydra.

Icon Bar The Icon Bar displays an icon for each of two connected Hydras. The default display is one icon (H1). To create a second icon (H2), select the Create New Hydra command from the Setup menu. The selected Hydra is highlighted. The information contained in the Hydra configuration display area applies to the Hydra selected on the icon bar, and any Hydra configuration changes apply to the selected Hydra.

Configuration Area The Hydra configuration display summarizes the Hydra configuration associated with the instrument that is selected on the Icon Bar. To change any of the configuration parameters shown, use the menus and dialog boxes provided in the main menu bar and the button bar. Refer to Table 4-1 for a summary of menu selections and dialog boxes to modify configuration parameters.



HYDRA CONFIGURATION - Hydra 1

Hydra Name: Temperature Chamber
Description: Santure Prototype Version 2.2

Communication:	COM1	**Data File:**	temp_2_2.csv
Trigger Type:	Interval + Monitor Alarm	**File Format:**	ASCII
Scan Interval:	60 sec	**Scans Recorded:**	Alarms Only, Skip 5
Scan Memory:	Alarms Only	**File Mode:**	Over-Write
Scan Destination:	Card & Memory	**Auto Rollover:**	Time Interval: 6 hours
Logging Mode:	Wrap-Around	**Min Free Disk:**	NA
Monitor Chan:	Ch2	**Temp Units:**	Celsius
Front Panel Lock:	Configuration Lock	**OTC Detect:**	Yes
Meas Rate:	Slow	**Total Debounce:**	Yes

Chan	Function	Range	Alarm 1	Alarm 2	Mx+B	Units	Label
0	OFF						
1	TC	K	LO->AO1	HI->AO1	ON	Deg F	Sensor 01
2	TC	K	LO->AO2	HI->AO2	ON	Deg F	Sensor 02
3	TC	K	LO->AO3	HI->AO3	ON	Deg F	Sensor 03
4	TC	K	LO	HI	ON	Deg F	Sensor 04
5	TC	K	LO	HI	ON	Deg F	Sensor 05
6	TC	K	LO	OFF	OFF	Deg C	Sensor 06
7	TC	K	LO	OFF	OFF	Deg C	Sensor 07
8	TC	K	LO	OFF	OFF	Deg C	Sensor 08
9	TC	K	LO->DO6	HI->DO7	ON	Deg F	Sensor 09
10	TC	K	LO->DO6	HI->DO7	ON	Deg F	Sensor 10
11	TC	J	LO	LO	OFF	Deg C	Sensor 11
12	TC	J	LO	LO	OFF	Deg C	Sensor 12
13	TC	J	LO	LO	OFF	Deg C	Sensor 13
14	TC	J	LO	LO	OFF	Deg C	Sensor 14
15	TC	J	LO	LO	OFF	Deg C	Sensor 15
16	TC	J	HI	LO	OFF	Deg C	Sensor 16
17	TC	J	HI	LO	OFF	Deg C	Sensor 17
18	TC	J	HI	LO	OFF	Deg C	Sensor 18
19	TC	J	HI	LO	OFF	Deg C	Sensor 19
20	TC	J	HI	LO	OFF	Deg C	Sensor 20

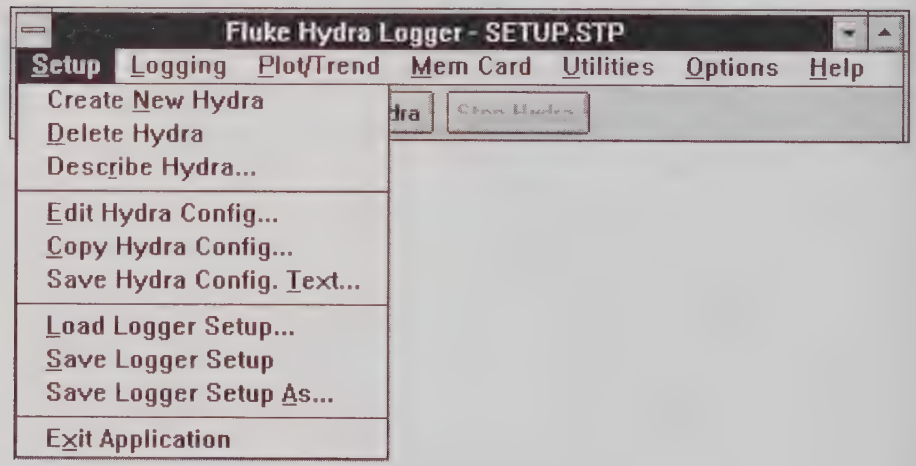
Figure 4-1. Reference Main Window

Table 4-1. Reference for Edit Hydra Configuration

Parameter	Menus, Buttons, Dialog Boxes for Changing Parameter
Hydra Name:	Setup menu, Describe Hydra command
Description:	Setup menu, Describe Hydra command
Communication	Edit Hydra Config. button, Communication button, Communication Config. box
Trigger Type	Edit Hydra Config. button, Hydra Configuration box
Scan Interval	Edit Hydra Config. button, Hydra Configuration box
Scan Memory	Edit Hydra Config. button, Advanced button, Advanced Scan Parameters box
Scan Destination	Edit Hydra Config. button, Advanced button, Advanced Scan Parameters box
Logging Mode	Edit Hydra Config. button, Advanced button, Advanced Scan Parameters box
Monitor Chan	Edit Hydra Config. button, Hydra Configuration box
Front Panel Lock	Edit Hydra Config. button, Hydra Configuration box
Meas Rate	Edit Hydra Config. button, Hydra Configuration box
Data File	Edit Hydra Config. button, Data File button, Select Data File button, Data File box
File Format	Edit Hydra Config. button, Data File button, Data File Configuration box
Scans Recorded	Edit Hydra Config. button, Data File button, Data File Configuration box
File Mode	Edit Hydra Config. button, Data File button, Data File Configuration box
Auto Rollover	Edit Hydra Config. button, Data File button, Auto Rollover button, Auto Rollover box
Min Free Disk	Edit Hydra Config. button, Data File button, Auto Rollover button, Auto Rollover box
Temp Units	Edit Hydra Config. button, Hydra Configuration box
OTC Detect	Edit Hydra Config. button, Hydra Configuration box
Total Debounce	Edit Hydra Config. button, Hydra Configuration box
Chan	Edit Hydra Config. button, Channels button, Channels Configuration box
Function	Edit Hydra Config. button, Channels button, Function button, Function Selection box
Range	Edit Hydra Config. button, Channels button, Function button, Function Selection box
Alarm 1	Edit Hydra Config. button, Channels button, Alarms button, Alarms Config. box
Alarm 2	Edit Hydra Config. button, Channels button, Alarms button, Alarms Config. box
Mx+B	Edit Hydra Config. button, Channels button, Mx+B button, Mx+B Configuration box
Units	Edit Hydra Config. button, Channels button, Function button, Function Selection box
Label	Edit Hydra Config. button, Channels button, Channels Configuration box

Setup Menu *4-3.*

The Setup menu (below) contains commands to create new Hydras in the Main Window, delete Hydras from the Main Window, describe the Hydra, edit the configurations of each of the attached Hydras, and copy and save various configurations and setups. All configuration-related dialog boxes include the associated Hydra number in the caption of the dialog, for example "Channel Configuration (Hydra 1)." All menu commands with an ellipses "..." open dialog boxes.



Create New Hydra *4-4.*

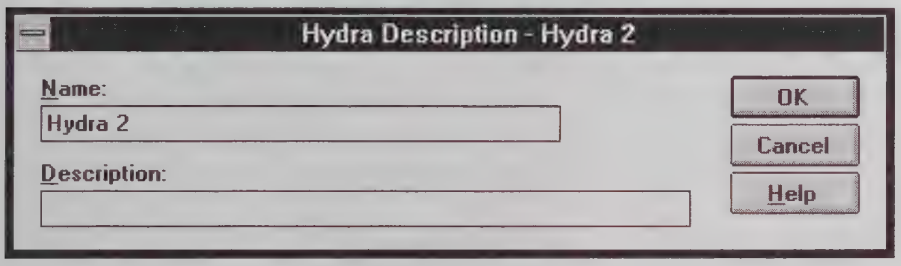
This menu selection adds a new Hydra icon to the Hydra selection menu bar. A default configuration is associated with the new Hydra icon, and is displayed in the Hydra configuration display area of the Main Window. Hydra *Logger for Windows* supports a maximum of two Hydra instruments - one on each host computer COM port.

Delete Hydra *4-5.*

This menu selection deletes the selected Hydra from the Hydra selection menu bar. The associated Hydra configuration is also deleted. A warning message appears that gives you a chance to cancel the deletion. If the command is dimmed, there is no Hydra to delete. (The Icon Bar always has at least one Hydra.)

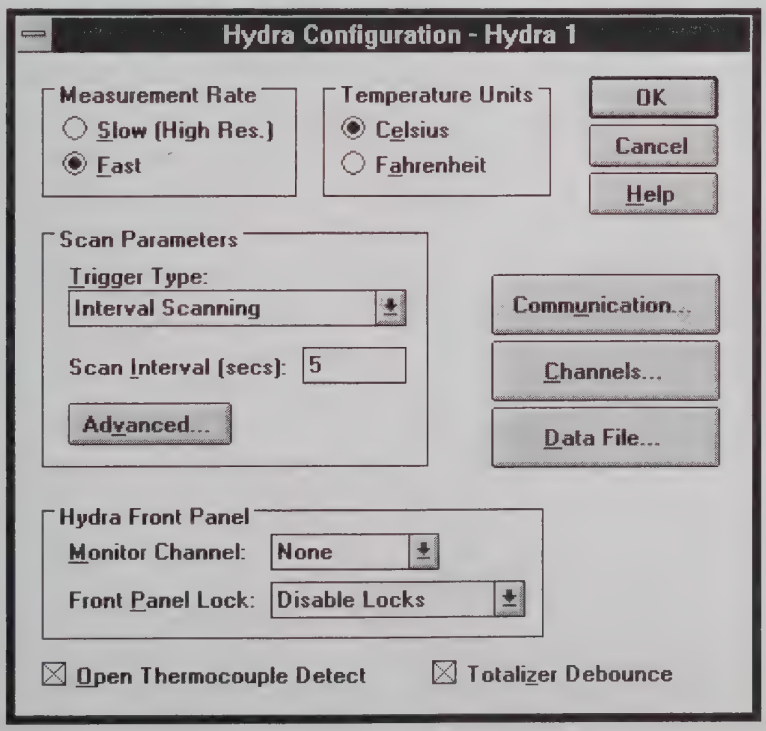
Describe Hydra *4-6.*

This menu selection opens a dialog box (below) for entering a Hydra name and description. Click OK after entering desired text.



Edit Hydra Configuration *4-7.*

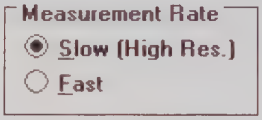
This menu selection opens a dialog box (below) for entering the configuration parameters and establishing the communications parameters.



The changes made to the parameters are shown in the Hydra configuration display area of the Main Window. The Hydra configuration is downloaded to the selected Hydra when the Hydra is started (using the Download Config. on Start starting mode — see the Utilities Menu).

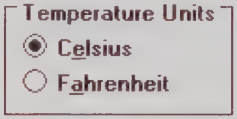
Measurement Rate *4-8.*

Measurement Rate (below) is the speed at which the Hydra measures the input of each channel. The slow measurement rate provides the highest accuracy, resolution, and noise rejection. The fast rate provides one less digit of resolution than the slow rate.



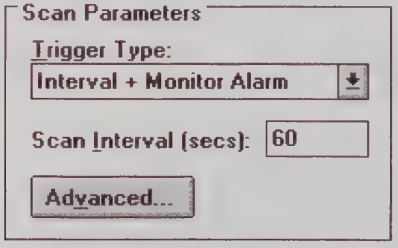
Temperature Units *4-9.*

Temperature Units (below) refers to the temperature reading taken on the Hydra. The displayed temperature unit is in degrees Celsius (°C) or Fahrenheit (°F).

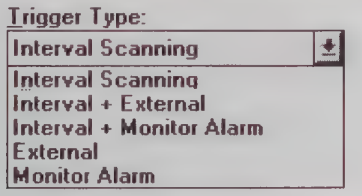


Scan Parameters *4-10.*

Scan Parameters (below) sets the method the selected Hydra uses to scan its channels.



Trigger Type Select the desired trigger type from the list box (below).



Interval Scanning Interval Scanning controls the scan trigger by the entry in the Scan Interval (secs) box.

Interval + External Interval + External allows an external source to initiate a single scan. If a scan is already in progress, this request is ignored.

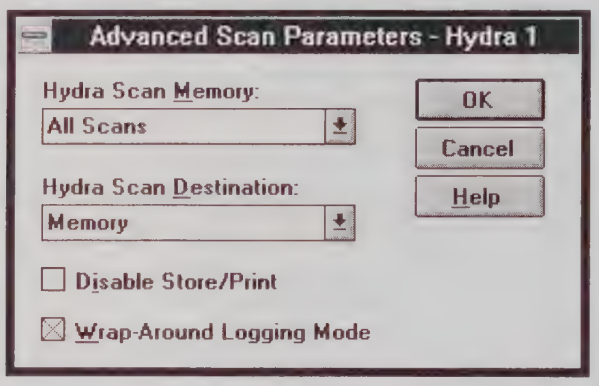
Interval + Monitor Alarm Interval + Monitor Alarm allows an alarm condition on the monitor channel to trigger a single scan. If a scan is already in progress, this request is ignored.

External External enables scanning when a low input occurs on the rear-panel TR terminal of the Hydra. If a scan is already in progress, this request is ignored.

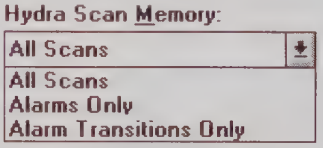
Monitor Alarm Monitor Alarm triggers a scan when an alarm condition occurs on the monitor channel. If a scan is already in progress, this request is ignored.

Scan Interval Enter the period between starts of measurement scans (below). The scan interval has a resolution of 1 second. The range is 0 (continuous scanning) to 38439 (9 hours, 99 minutes, and 99 seconds).

Advanced Click the Advanced button to access the advanced scan parameters (below).



Hydra Scan Memory Establishes the type of scans saved in internal Hydra logging memory (2625A Data Logger) and memory card file (2635A Data Bucket), or printer (both instruments) (below).

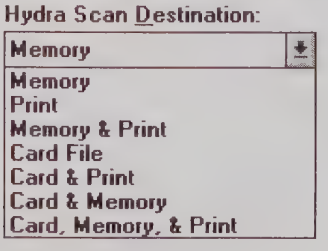


All Scans All scans taken by the instrument are stored.

Alarms Only Scans taken by the instrument are stored only if one or more alarms are active.

Alarm Transitions Only Only the single scan taken by the instrument when an alarm transition occurs (off-to-on or on-to-off) is saved.

Hydra Scan Destination Establishes the destination for the scan data (below).



Memory Selects the internal logging memory as the scan data destination (2625A Data Logger only.)

Print Selects the instrument printer output (RS-232 interface) as the scan data destination.

Memory & Print Selects both the internal logging memory and the instrument printer output (RS-232 interface) as the scan data destinations (2625A Data Logger only.)

Card File Selects the Data Bucket Memory Card file as the scan data destination (2635A Data Bucket only.)

Card & Print Selects both the Data Bucket Memory Card file and the printer output as the scan data destinations (2635A Data Bucket only.)

Card & Memory Selects both the Data Bucket Memory Card file and the internal logging memory as the scan data destinations (2635A Data Bucket only.)

Card, Memory & Print Selects the Data Bucket Memory Card file, the internal logging memory, and the printer output as the scan data destinations (2635A Data Bucket only.)

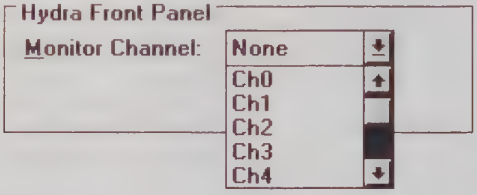
Disable Store/Print Check to disable the storage and printer output of the scan data (below). Select only if all data collection is online with the host computer, or if the instrument is operated from the front panel.

Wrap-Around Logging Mode Check to overwrite old scans when the Hydra internal memory is full (below). Uncheck to stop recording when the Hydra internal memory is full.

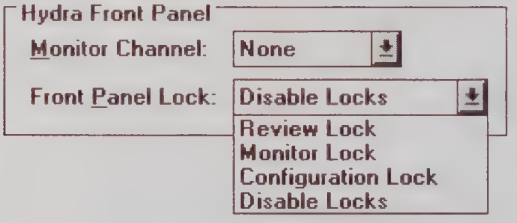
Hydra Front Panel *4-11.*

Hydra Front Panel sets the attributes of the Hydra front panel when the Hydra starts logging data. This includes Monitor Channel and Front Panel Lock.

Monitor Channel Establishes which channel is displayed on the front panel of the Hydra during logging (below). The selection includes channels 0 through 20, or "None" if no channel is to be displayed.



Front Panel Lock Enables or disables special Hydra lockout modes (below).



Review Lock All keys are disabled except the up/down and left/right arrow keys for review of the minimum, maximum, and last values of any channel.

Monitor Lock All keys are disabled except the up/down arrow keys for monitoring any channel.

Configuration Lock All key functions that could affect instrument configuration are disabled (2635A Data Bucket only).

Disable Locks None of the above, that is, are lock functions are disabled.

Open Thermocouple Detection *4-12.*

Check to enable the open thermocouple detection circuitry (below). Uncheck if you have other instrumentation measuring the same thermocouple terminal.

☒ Open Thermocouple Detect

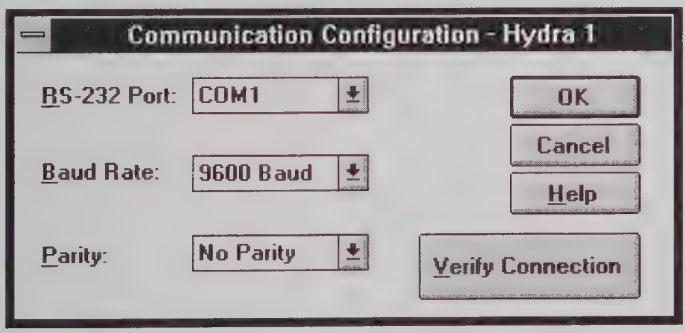
Totalizer Debounce *4-13.*

Check to enable switch-contact debouncing for the Σ input on the rear panel Digital I/O connector, which adds a delay of 1.75 ms to each transition (below).

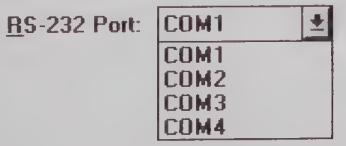
☒ Totalizer Debounce

Communication *4-14.*

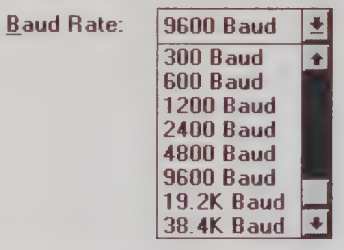
Click the Communication button to open the Communication Configuration dialog box (below), which is used for setting up the communications link between the host computer and Hydra instruments.



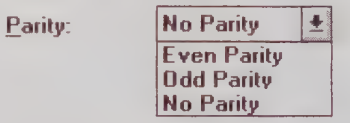
RS-232 Port Select the host computer COM port from the list box (below).



Baud Rate Select the baud rate from the list box (below). (19.2K Baud and 38.4K Baud apply to 2635A Data Bucket only.)



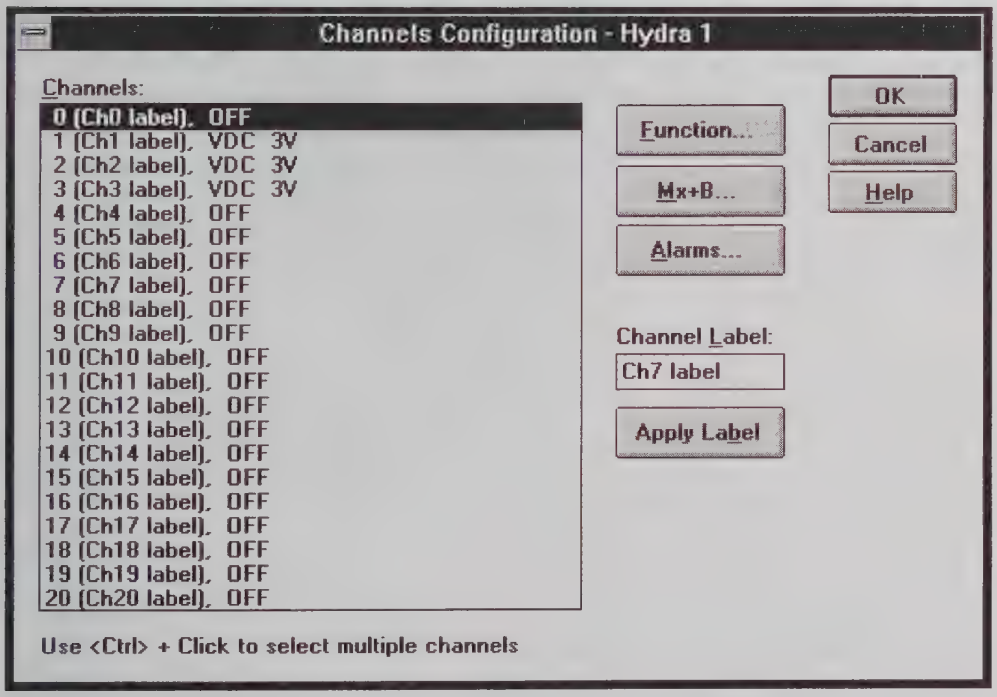
Parity Select parity from the list box (below).



Verify Connection Click the Verify Connection button to test the communications you have set up. If an error occurs, a diagnostic error message is displayed. (See Appendix C "Error Messages.")

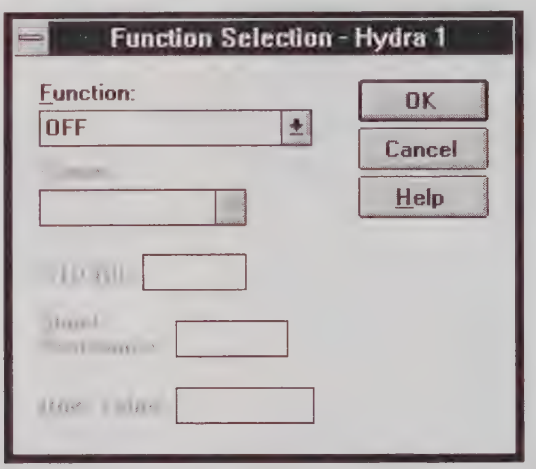
Channels *4-15.*

Click the Channels button to open the Channels Configuration dialog box (below) for setting up the channel functions.

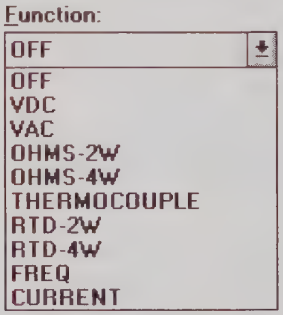


Function 4-16.

Click the Function button to open the Function Selection dialog box (below), which is used to change the function of selected Hydra channels.



Function Selects the measurement parameter for the selected channel(s) (below).



Range Selects the range for the measurement parameter (below is typical). Auto (Autoranging) allows the instrument to automatically select the range that provides the best measurement resolution.

RTD R0 Use the RTD R0 edit box (below) to enter the resistance of the RTD at the freezing point (Fahrenheit or Celsius).

RTD R0: 100

Shunt Resistance Use the Shunt Resistance edit box (below) to enter the resistance of the current measurement shunt resistor (default is 10 ohms). Note that current measurement is implemented as a VDC measurement across a shunt resistor. The Hydra *Logger for Windows* package automatically computes the scale factor and offset (M & B) parameters for each current channel and applies this as an Mx+B correction to the voltage measured. When the 4-20 mA range is selected on a current measurement channel, the M & B are calculated to produce a reading that is 0% for 4 mA and 100% for 20 mA. When the 100 mA range is selected, the reading is scaled to amps.

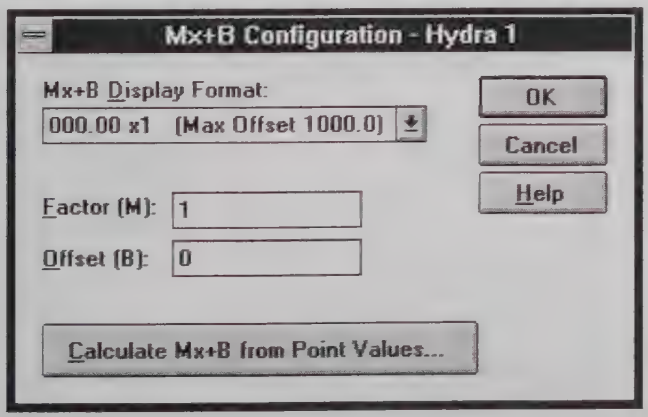
Shunt Resistance: 10

Units Label Use the Units Label edit box (below) to select the units displayed for the selected Hydra channel.

Units Label: Degrees

Mx+B 4-17.

Click the Mx+B button to open the Mx+B Configuration dialog box (below), which is used to select the factor (M), offset (B), and display format of an Mx+B measurement for scaled readings on the selected channel of the Hydra.



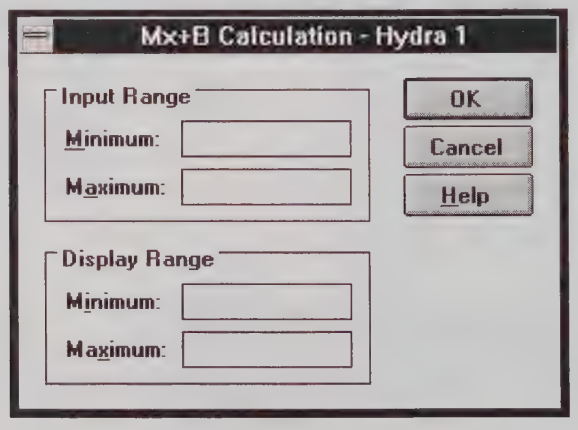
Mx+B Display Format Use the Mx+B Display Format list box (below) to select the format of the readings displayed on the Hydra front panel display.

0.0000 m	(Max Offset 0.01)
00.000 m	(Max Offset 0.1)
000.00 m	(Max Offset 1.0)
0000.0 m	(Max Offset 1.0)
0.0000 x1	(Max Offset 10.0)
00.000 x1	(Max Offset 100.0)
000.00 x1	(Max Offset 1000.0)
0000.0 x1	(Max Offset 1000.0)
0.0000 k	(Max Offset 1.0E4)
00.000 k	(Max Offset 1.0E5)
000.00 k	(Max Offset 1.0E6)
0000.0 k	(Max Offset 1.0E6)
0.0000 M	(Max Offset 1.0E7)
00.000 M	(Max Offset 1.0E8)
000.00 M	(Max Offset 1.0E9)
0000.0 M	(Max Offset 1.0E10)

Factor (M) Use the Factor (M) edit box (below) to select the M scaling value.

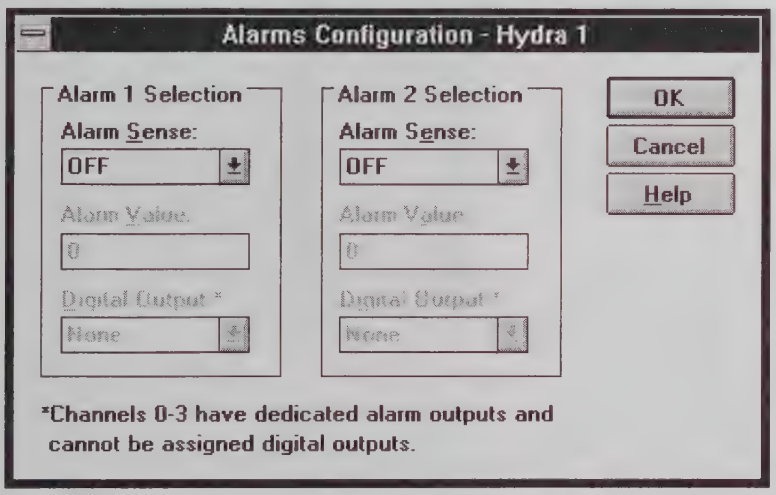
Offset (B) Use the Offset (B) edit box (below) to select the B scaling value.

Calculate Mx+B from Point Values Click the Calculate Mx+B from Point Values button to open the Mx+B Calculation dialog box (below), which calculates the Factor (M), Offset (B), and displays format values. Enter the minimum and maximum values of the input and output. Click OK.



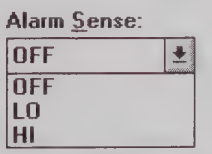
Alarms 4-18.

Click the Alarms button to open the Alarms Configuration dialog box (below), which is used to configure alarms for the selected Hydra channels.

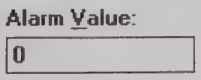


Alarm 1 Selection or **Alarm 2 Selection** Define the conditions for Alarms.

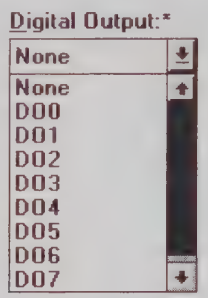
Alarm Sense Use the Alarm State drop-down box (below) to set the alarm to either OFF for no alarms, LO for alarms to occur below a certain limit, and HI for alarms to occur above a certain limit.



Alarm Value Use the Alarm Value edit box (below) to set the value at which the alarm is activated.

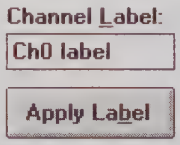


Digital Output Use the Digital Output drop-down box (below) to associate alarms for channels 4 though 20 with the Hydra rear panel DIGITAL I/O lines. Alarms on channels 0 through 3 are permanently associated with alarm output lines 0 to 3 respectively.



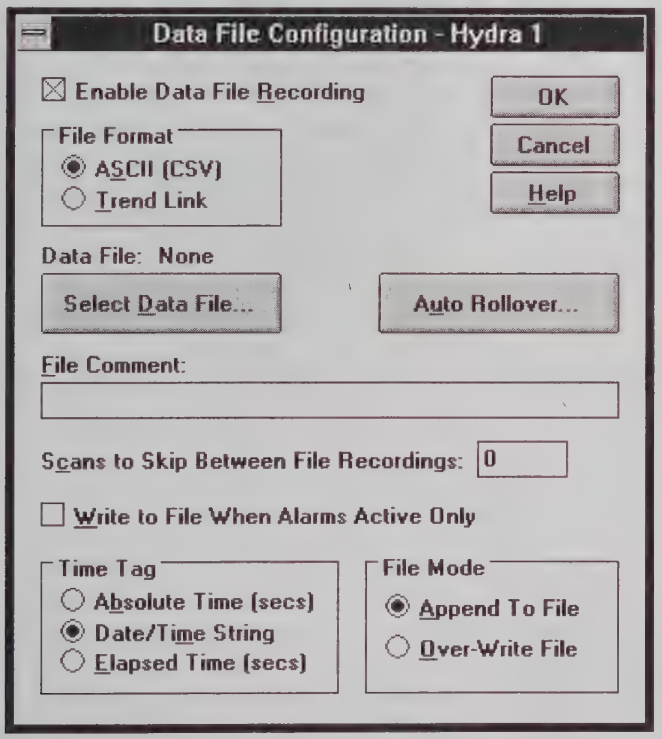
Channel Label 4-19.

To change the label of the selected channel(s), enter the new label in the Channel Label edit box (below), then click the Apply Label button.



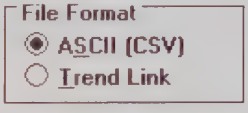
Data File *4-20.*

Click the Data File button to open the Data File Configuration dialog box (below), which is used to enable data file recording of scan data and set data file parameters.



Enable Data File Recording Check to Enable Data File Recording (below). To disable data file recording, remove the check from the Enable Data File Recording check box. All other boxes in the dialog box are disabled, but the information contained in them is retained.

File Format Use the selections in the File Format area (below) to select the data file format ASCII (CSV) or Trend Link. Trend Link format is available only if the *Trend Link for Fluke* package is installed



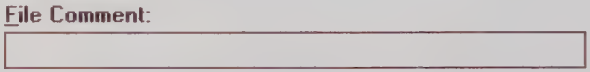
ASCII (CSV) Save scan data in comma-separated variable ASCII characters.

Trend Link Save scan data in Trend Link file format. (Use only if *Trend Link for Fluke* is installed.)

Data File The entered data file name appears in this text area (below is typical).

Select Data File Click the Select Data File button to select the name of the data file. For the Trend Link format, you are limited to seven characters plus extension.

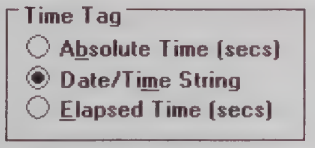
File Comment Use the File Comment edit box (below) to enter a comment to be placed in the data file heading.



Scans to Skip Between File Recordings Use the Scans to Skip Between File Recordings edit box (below) to select how many scans you want to skip between recordings to the data file. For example, if you select 0, all scans are recorded in the data file. If you select 1, every other scan is recorded.

Write to File When Alarms Active Only To write to the data file only when an alarm occurs, check the Write to File When Alarms Active Only check box (below).

Time Tag Time Tag (below) sets the format of the time stamp that is recorded at the beginning of each record in the data file (ASCII file format only).

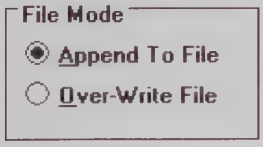


Absolute Time (secs) Absolute time is the number of seconds since January 1, 1970 at 00:00:00 Universal Coordinated Time (UCT).

Date/Time String Date/Time String shows the time as a string consisting of the month, day, and year, along with the hour, minutes, and seconds.

Elapsed Time (secs) Elapsed Time shows the time as the number of seconds since the time of the first scan entered into the data file.

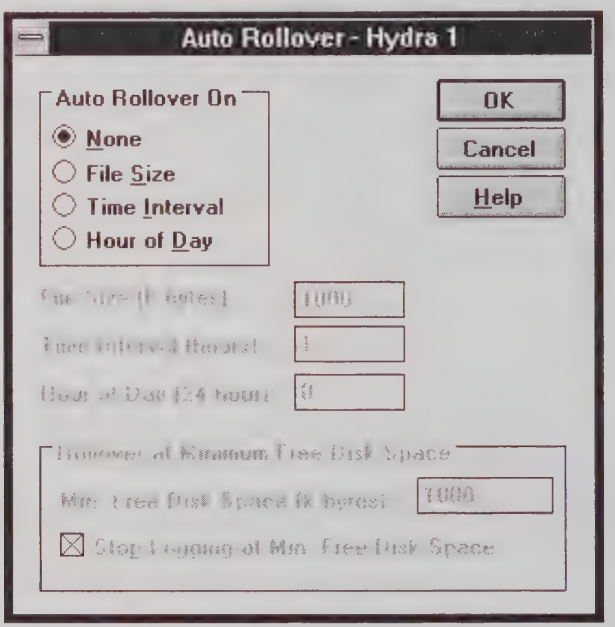
File Mode The File Mode box (below) lets you select how to write to an ASCII data file.



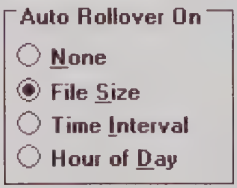
Append To File To append data to an already existing file, select the Append to File option button.

Over-Write File To always overwrite the file at the start of a logging run, select the Over-Write File option button.

Auto Rollover Click the Auto Rollover button to open the Auto Rollover dialog box (below.) Use the controls in this box to enter information about the conditions to automatically close the existing data file and open a new one. When the data file is written in Trend Link format, this is a method for rolling the `*.NEW` file into a `*.TLG` file and starting a new `*.NEW` file. When the data file is written in ASCII (CSV), auto rollover causes the existing `*.CSV` file to be closed and a new file opened. Use of the auto rollover feature in Hydra *Logger for Windows* allows multiple smaller files to be created during a long data collection session. These smaller data files are sometimes easier to manage than one large file.



Auto Rollover On Select the event (below) that causes the rollover.



None Select this to disable auto rollover functions on events other than minimum free disk space.

File Size Select this to enable data file rollover when the file reaches a specific size in bytes (200 to 10000).

Time Interval Select this to enable data file rollover at a time interval (in hours, 1 to 99) since the start of logging or since the last file rollover event.

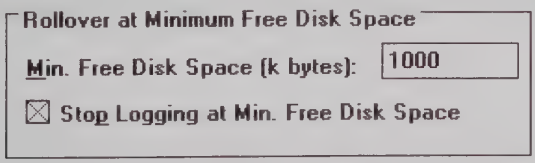
Hour of Day Select this to enable data file rollover at a specific time of day (even hours on the 24-hour clock, 0-23 are valid entries.)

File Size (k bytes) If file size is selected as the rollover trigger event, enter the size that causes the rollover to occur (below).

Time Interval (hours) If the interval since the start of logging or since the last rollover is selected as the rollover trigger event, enter the time interval here (below).

Hour of Day (24 hour) If rollover is to occur at a specific time of day, enter the hour (24-hour clock) that the rollover is to occur (even hours only) (below).

Rollover at Minimum Free Disk Space Sets conditions for Trend Link files (only) rollover when the hard disk space begins to fill up (below).

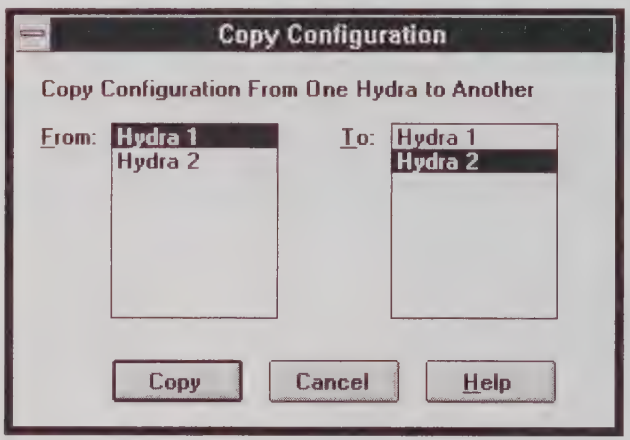


Min. Free Disk Space (k bytes) Enter the minimum amount of free disk space that should exist for a Trend Link file (0 to 100000). When this amount of space is reached, an automatic rollover is performed that protects the accumulated data on the event of running out of disk space.

Stop Logging at Min. Free Disk Space Check to terminate logging when free disk space reaches the entered size. If logging is not terminated, and the disk fills up, the current data file may be lost.

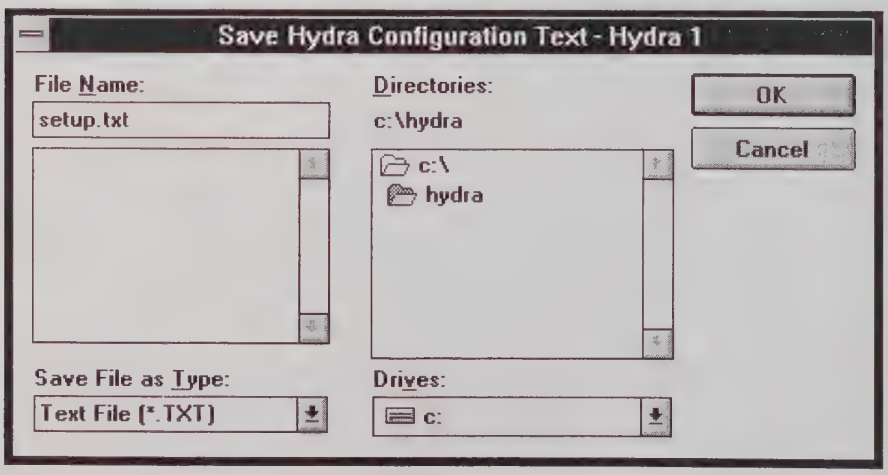
Copy Hydra Configuration *4-21.*

The Copy Configuration dialog box (below) copies the configuration from one Hydra to the other. Communication, data file parameters, and Hydra name are not copied.



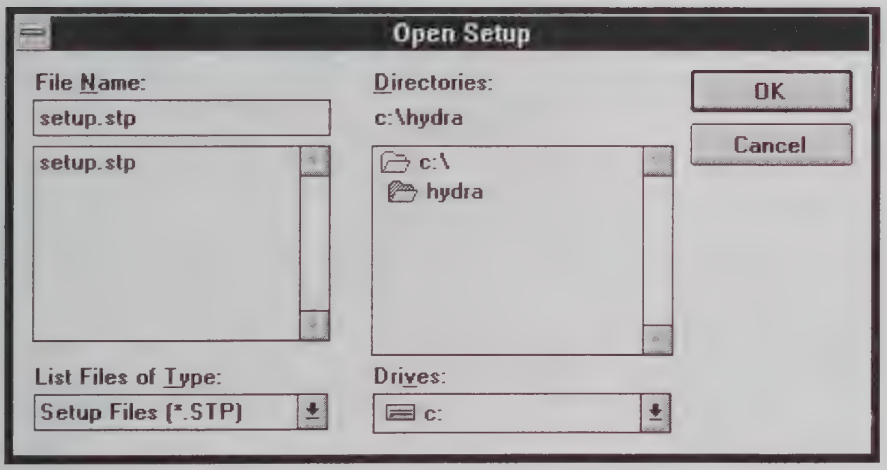
Save Hydra Configuration Text *4-22.*

The Save Hydra Configuration Text dialog box (below) saves the Hydra configuration to a text file. The configuration text is for documentation purposes only and cannot be loaded into the Hydra *Logger for Windows* application.



Load Logger Setup *4-23.*

The Load Setup File dialog box (below) allows you to select a setup file from which the overall logger setup is to be loaded. The logger setup includes the quick plot configuration. The Hydra *Logger for Windows* application also accepts the logger setup filename as a command line argument when the application is started.

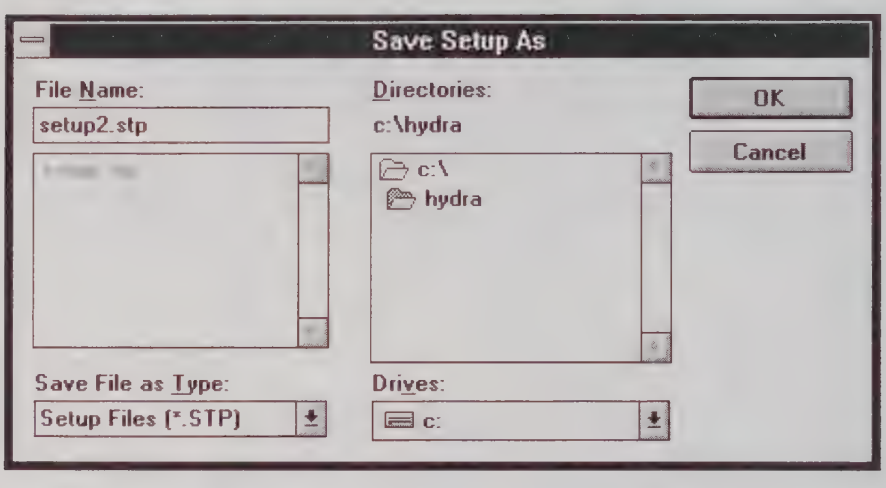


Save Logger Setup *4-24.*

This menu selection saves the current overall logger setup into the setup file last loaded from or saved to. If no such file exists, this menu selection opens a dialog box that lets you select a setup filename.

Save Logger Setup As 4-25.

The Save Logger Setup As dialog box (below) lets you save the current overall logger setup into a file with a filename you select.

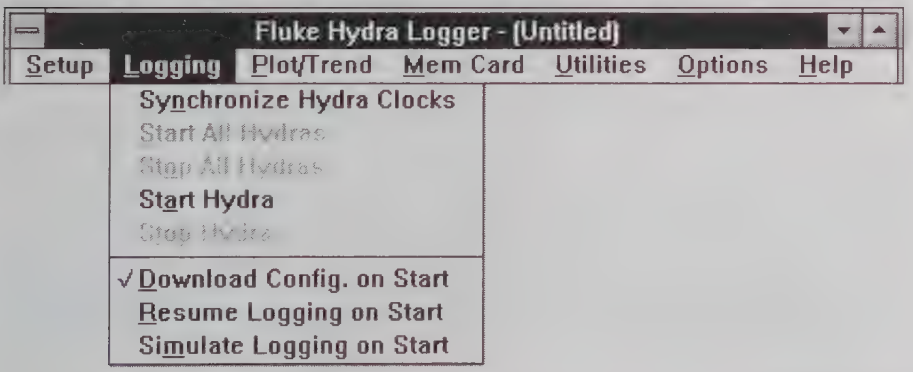


Exit Application 4-26.

This menu selection closes the Hydra *Logger for Windows* application and the associated quick plot. If changes have been made to the overall setup and have not been saved, you are asked whether you want to save the changes.

Logging Menu *4-27.*

The Logging menu (below) contains the following selections for starting and stopping logging activity and for specifying how to start logging.

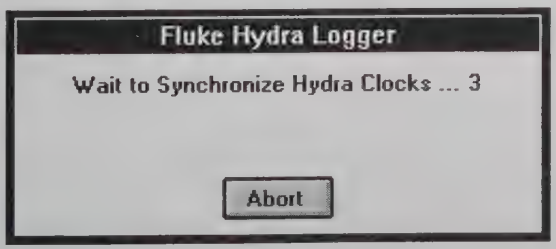


After a Hydra has been started, its associated icon in the Hydra Selection menu bar is modified to indicate logging status. The appearance of the icon is different for normal logging and for simulated logging.

Certain menu functions are not available during logging and are disabled. These functions include Hydra configuration changes and any actions that involve communicating with the Hydra.

Synchronize Hydra Clocks *4-28.*

This command sets all Hydras to the same date and time. If one or both of the instruments are 2625A Data Loggers, it may take up to 1 minute to execute this function. During this time, the program is waiting for an even minute on the host computer clock. During the wait time, the message shown below is displayed. The Synchronize Hydra Clocks command is important for correlating data from multiple Hydras in plotting and data processing.



Start All Hydras 4-29.

This command initiates data collection from Hydras not already in data collection mode. If starting in the Download Config. on Start mode and a Hydra has scans in its logging memory, a warning message appears, giving you the option to cancel. If you continue, logging memory is cleared. If initiation of data collection for any Hydra fails, an error message is displayed, and the command is aborted.

"All Hydras" refers to the Hydras appearing in the Hydra selection menu bar.

Stop All Hydras 4-30.

This command stops data collection from the Hydras. If scans remain in any Hydra after scanning has been stopped, the remaining scans are read (to abort reading the scans, click the Abort button). "All Hydras" refers to the Hydras appearing in the Hydra selection icon bar.

Start Hydra 4-31.

This command initiates data collection from the selected Hydra. If starting in the Download Config. on Start mode and if the Hydra has scans in its logging memory, a warning message appears, giving you the option to cancel. If you continue, logging memory is cleared. If initiation of data collection fails, an error message is displayed.

Stop Hydra 4-32.

This command stops data collection from the selected Hydra. If scans remain in the Hydra after scanning has been stopped, the remaining scans are read (to abort reading the scans, click the Abort button).

Download Configuration on Start 4-33.

If you check this menu item, the Hydra configuration is downloaded to each Hydra being started when the Start Hydra or Start All Hydras command is selected. The logging memory contents of the Hydra being started are cleared.

Resume Logging on Start 4-34.

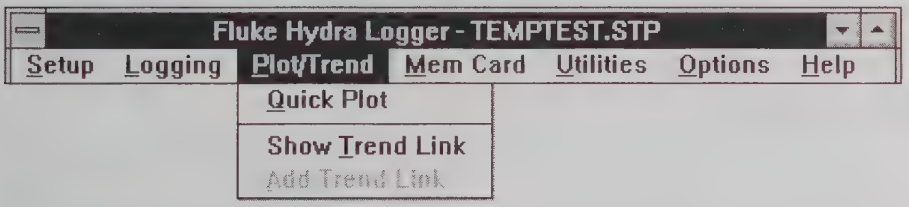
If you check this menu item, the Hydra configuration is uploaded from each Hydra being started. Logging memory is not cleared.

Simulate Logging on Start *4-35.*

If you check this menu item, data associated with each Hydra comes from a simulated source when the Start Hydra or Start All Hydras command is selected. The simulated data consists of repeated patterns on each channel. This selection is used to try out various configurations and plots before actually logging data with a connected Hydra.

Plot/Trend Menu *4-36.*

The Plot/Trend menu (below) shows Quick Plot and Trend Link plot windows. It also allows addition of Trend Link support if *Trend Link for Fluke* is installed after Hydra *Logger for Windows*.



Quick Plot *4-37.*

This menu selection makes the Quick Plot window visible. The Quick Plot is configured from the plot window's menu system. For a complete description of Quick Plot using examples, see Chapter 3 "Quick Plot."

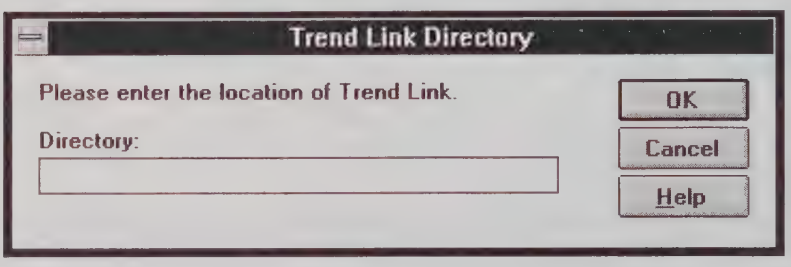
Show Trend Link *4-38.*

This menu selection starts up the *Trend Link for Fluke* package with a default plot that contains the first four channels enabled in the selected Hydra (if that many are active). See the *Trend Link for Fluke* reference manual for a complete description of Trend Link operation, and Chapter 5 of this manual for a summary of using *Trend Link for Fluke*.

Add Trend Link *4-39.*

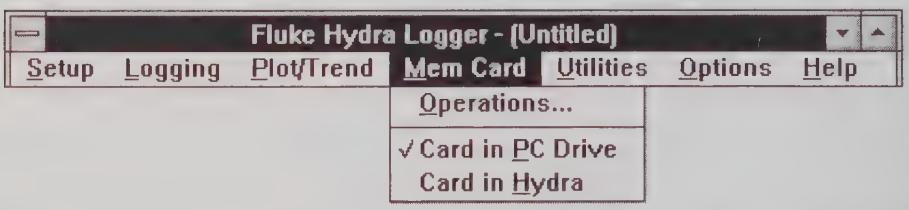
This menu selection adds Trend Link support after initial installation. At installation, *Hydra Logger for Windows* checks if *Trend Link for Fluke* is installed in the default directory. If it is, it enables all its Trend Link related functions. If Trend Link is not installed, or if it was installed in a directory other than the default, it disables these functions.

If *Trend Link for Fluke* is installed after *Hydra Logger for Windows*, or if it was installed in a directory other than the default one, use this control to enable Trend Link functions. If *Trend Link for Fluke* has been installed in a directory other than `C:\TL`, an entry box is displayed (below) for entry of the path to the Trend Link directory. Enter the full path (including the disk name) to the Trend Link directory; then click the OK button.



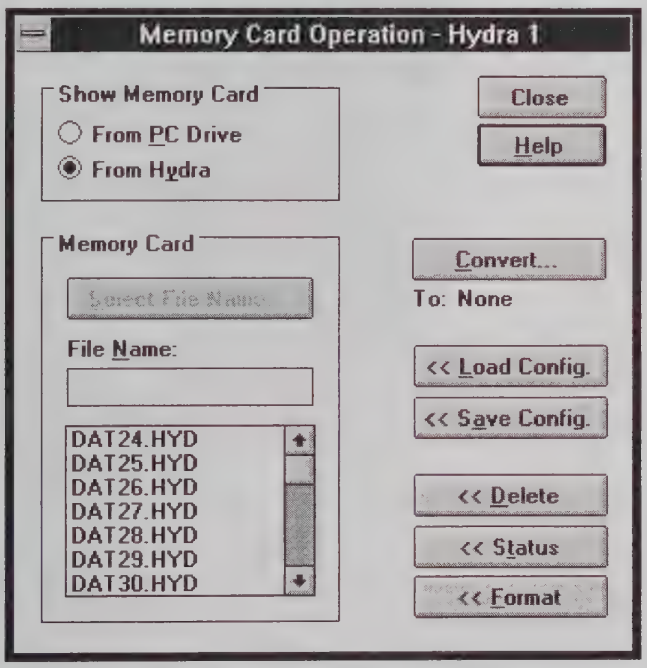
Mem Card Menu 4-40.

The Memory Card menu (below) allows you to manage Data Bucket memory card files (2635A Data Bucket).



Operations *4-41.*

This command opens a dialog box (below) for management and conversion of the files on a Data Bucket memory card.

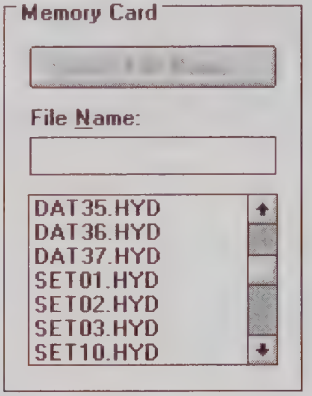


Show Memory Card

From PC Drive When selected, sets the location of the memory card to a memory card drive attached to the PC. This selection removes any listing of files and the Select File Name button is not dimmed.

From Hydra When selected, sets the location of the memory card to the selected Hydra instrument (must be a 2635A Data Bucket). Selecting this control also refreshes the displayed memory card file list, and dims the Select File Name button. The memory card file list includes `DATnn.HYD` and `SETnn.HYD` files.

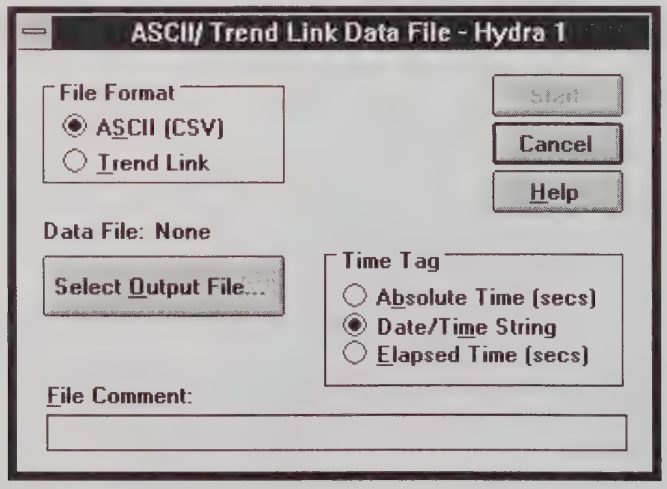
Memory Card Memory card files (below is typical) are in the format `DATnn.HYD` for data files and `SETnn.HYD` for configuration files, where `nn` is a number from `00` to `99`. Always observe this convention for memory card files.



Select File Name This button selects files when the memory card is in a PC drive and is dimmed when memory card is in an instrument drive.

File Name Shows the selected file when using the Select File Name button.

Convert After a memory card data file has been selected from Memory Card above, this button opens the ASCII/Trend Link Data File dialog box (below) to set up the conversion parameters. Once you have selected the file and type, use the Start button to start file upload and conversion.

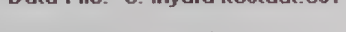


File Format Use the selections in the File Format area (below) to select the data file format ASCII (CSV) or Trend Link. Trend Link format is available only if the *Trend Link for Fluke* package is installed

ASCII (CSV) Save scan data in comma-separated variable ASCII characters.

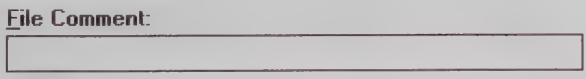
Trend Link Save scan data in Trend Link file format. (Use only if *Trend Link for Fluke* is installed.)

Data File The entered data file name appears in this text area (below is typical).

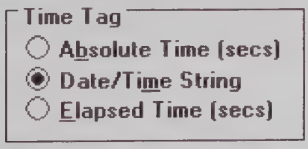


Select Data File Click the Select Data File button to select the name of the data file. For the Trend Link format, you are limited to seven characters plus extension.

File Comment Use the File Comment edit box (below) to enter a comment to be placed in the data file heading.



Time Tag Time Tag (below) sets the format of the time stamp that is recorded at the beginning of each record in the data file (ASCII file format only).



Absolute Time (secs) Absolute time is the number of seconds since January 1, 1970 at 00:00:00 Universal Coordinated Time (UCT).

Date/Time String Date/Time String shows the time as a string consisting of the month, day, and year, along with the hour, minutes, and seconds.

Elapsed Time (secs) Elapsed Time shows the time as the number of seconds since the time of the first scan entered into the data file.

Load Config. This button loads the instrument configuration from the selected memory card file into the configuration of the selected Hydra on the host computer. This action does not load the configuration into the selected Hydra instrument until a download is performed. (See the "Utilities Menu.")

Save Config. This button saves the configuration of the selected Hydra on the host computer to a memory card file. This does not load the configuration into the instrument. Use the download utility or the instrument front panel controls to load the configuration into the instrument.

Delete This button deletes the selected memory card file. The card must be in the Hydra only for this function. Use the Windows File Manager utility to delete files in a PC memory card drive.

Status This button displays the status of the memory card. The card must be in the Hydra only for this function. Use the utility that came with your memory card drive to display the status of a card in the memory card drive.

Format This button formats the memory card. The card must be in the Hydra only for this function. Use the utility that came with your memory card drive to format a card in the memory card drive.

Card in PC Drive *4-42.*

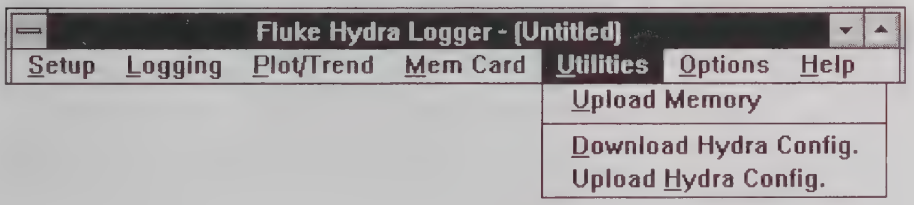
When selected, this command sets the location of the memory card to a memory card drive attached to the PC. Memory card drives simulate disk drives and are assigned a drive letter when the PC boots up and loads the memory card driver software. The PC memory card drive operates faster than an instrument memory card drive.

Card in Hydra *4-43.*

When selected, this command sets the location of the memory card to the selected Hydra instrument (must be a 2635A Data Bucket). The instrument memory card drive operates more slowly than a PC memory card drive.

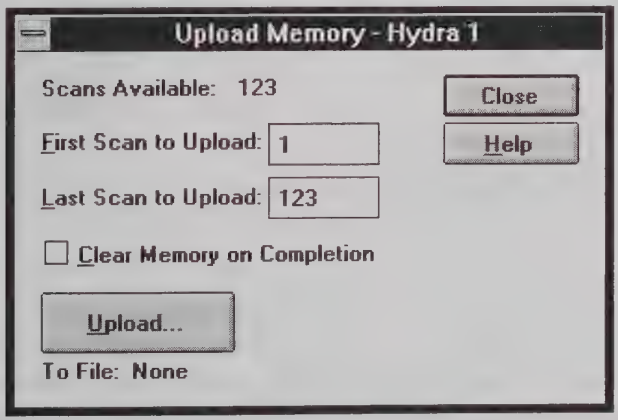
Utilities Menu *4-44.*

The Utilities menu (below) allows you to upload logging memory data, and download and upload the Hydra configuration from the host computer.



Upload Memory *4-45.*

The 2625A Data Logger supports storing up to 2047 scans of measurement data in an internal logging memory, while the 2635 Data Bucket supports up to 100 scans in internal memory. Use the Upload Memory command under the Utilities main menu to transfer the data to the host computer and convert it into a useful format. This command displays a dialog box (below) to control the uploading of the scan data stored in an instrument logging memory.



Scans Available This display shows the number of scans available in the scan memory (below is typical).

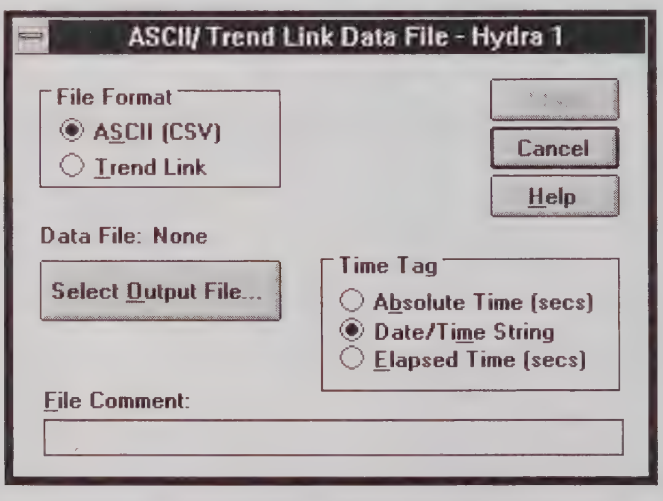
Scans Available: 123

First Scan to Upload Enter the number of the oldest scan that is to be transferred to the host computer (below is typical).

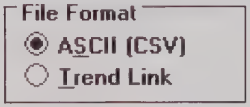
Last Scan to Upload Enter the number of the newest scan that is to be transferred to the host computer (below is typical).

Clear Memory on Completion Check this selection if the scan memory is to be cleared once the upload is complete.

Upload This button opens the ASCII/Trend Link Data File dialog box (below) to set up the upload file parameters. Once the file and type is selected, use the Start button to start file upload.



File Format Use the selections in the File Format area (below) to select the data file format ASCII (CSV) or Trend Link. Trend Link format is available only if the *Trend Link for Fluke* package is installed



ASCII (CSV) Save scan data in comma-separated variable ASCII characters.

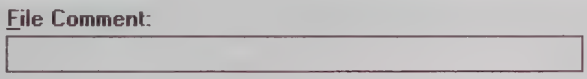
Trend Link Save scan data in Trend Link file format. (Use only if *Trend Link for Fluke* is installed.)

Data File The entered data file name appears in this text area (below is typical).

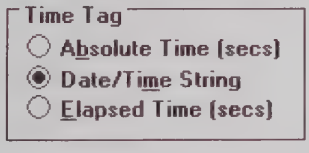
Data File: c:\hydra\testdat.csv

Select Data File Click the Select Data File button to select the name of the data file. For the Trend Link format, you are limited to seven characters plus extension.

File Comment Use the File Comment edit box (below) to enter a comment to be placed in the data file heading.



Time Tag Time Tag (below) sets the format of the time stamp that is recorded at the beginning of each record in the data file (ASCII file format only).



Absolute Time (secs) Absolute time is the number of seconds since January 1, 1970 at 00:00:00 Universal Coordinated Time (UCT).

Date/Time String Date/Time String shows the time as a string consisting of the month, day, and year, along with the hour, minutes, and seconds.

Elapsed Time (secs) Elapsed Time shows the time as the number of seconds since the time of the first scan entered into the data file.

To File The destination data file name appears in this text area (below is typical).

To File: c:\hydra\testdat.csv

Download Hydra Configuration *4-46.*

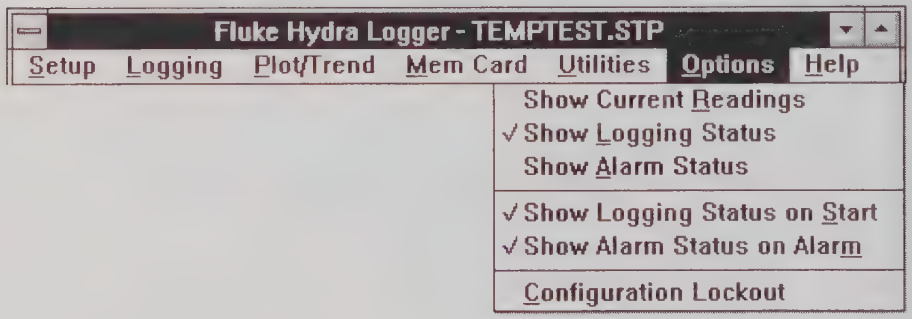
When selected, this command downloads the Hydra configuration from the host computer to the Hydra. If the Hydra has scans in its logging memory, a warning message appears, giving you the option to cancel. If you continue, logging memory is cleared. This command applies only to the selected Hydra. (Note: The dc current function is downloaded as dc volts with adjust Mx+B values.)

Upload Hydra Configuration 4-47.

When selected, this command uploads the Hydra Configuration from the selected Hydra to the host computer. Logging memory is not cleared as a result of this command. When the upload is complete, a warning message appears indicating that channel labels and units labels may be inconsistent with the new uploaded configuration. Be sure to edit these labels to match the new configuration.

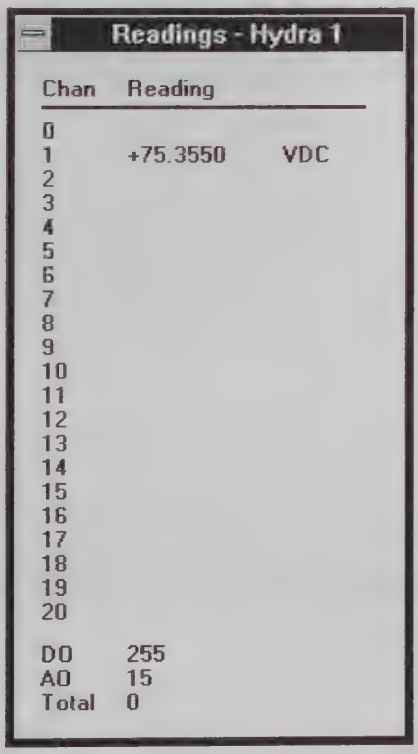
Options Menu 4-48.

The Options menu (below) allows you to monitor various status indications from the Remote Hydras.



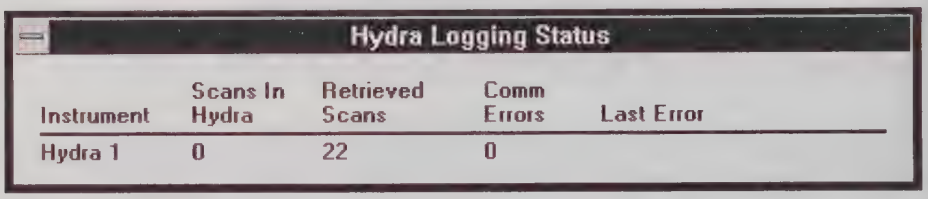
Show Current Readings *4-49.*

This menu selection displays a table of readings for all 21 Hydra channels, the digital and alarm outputs, and the totalizer count for the selected Hydra (below is typical). Only one Readings table can be viewed at a time. The Readings window does not disable the Main Window while the Readings window is visible. To close the Readings window, select Close from the Readings window control menu.



Show Logging Status *4-50.*

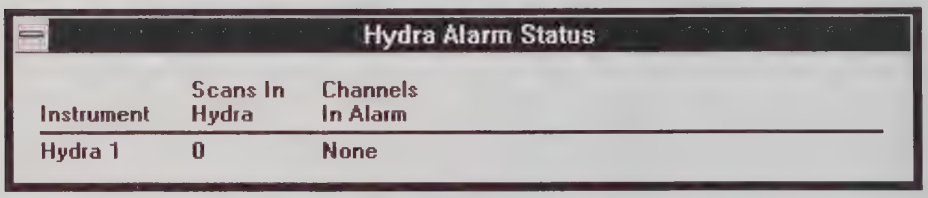
This menu selection displays the logging status of each Hydra (below is typical). The displayed error message is an abbreviated form of the standard error messages. Use this status window to verify that scans are being retrieved as quickly as they are being collected in Hydra scan memory. The Scans in Hydra value should always settle down to values below 10. If not, stop logging and increase the scan interval of one or more Hydras, then restart logging and recheck the logging status window.



The Logging Status window does not disable the Main Window while the Logging Status window is visible. To close the Logging Status window, select Close from the Logging Status window control menu.

Show Alarm Status *4-51.*

If this menu is checked, the Alarm Status window appears on top of the Main Window (below is typical). This window displays the alarm status of each Hydra, including the current scans in Hydra value, and a list of the channels in alarm for the last scan retrieved.



The Alarm Status window does not disable the Main Window while the Alarm Status window is visible. To close the Alarm Status window, select Close from the Alarm Status window control menu.

Show Logging Status on Start *4-52.*

If this menu selection is checked, the Logging Status window appears automatically when the Start Hydra or Start All Hydras command is completed.

Show Alarm Status on Alarm *4-53.*

If this menu selection is checked, the Alarm Status window appears automatically when a channel transitions into the alarm state. A beep occurs when the window appears.

Configuration Lockout *4-54.*

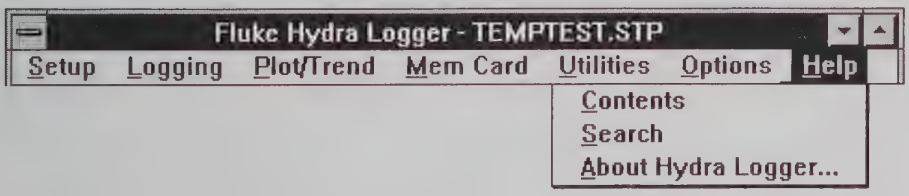
If this menu selection is checked, the following configuration-related menu items are disabled from the Setup menu:

- **Create New Hydra**
- **Delete Hydra**
- **Describe Hydra...**
- **Edit Hydra Configuration...**
- **Copy Hydra Configuration...**

The button duplicating the "Edit Hydra Configuration" function is also disabled.

Help Menu *4-55.*

The Help menu (below) contains commands for online assistance and software design information.



Contents *4-56.*

Opens online help to the contents screen.

Search *4-57.*

Opens online help to the search feature.

About Hydra Logger *4-58.*

Displays copyright information and the software version number.

Chapter 5
Using Trend Link for Fluke

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Introduction 5-1.

The optional *Trend Link for Fluke* package (Trend Link) graphs real-time and historical trending data in the Microsoft Windows environment. Trend Link operation is supported in this chapter of the manual with a series of procedures in conjunction with Hydra *Logger for Windows*. Refer to the *Trend Link for Fluke Reference Manual* for complete information about Trend Link.

This chapter includes the following main topics:

- **Starting and Stopping Trend Link** Description of the various ways of starting and stopping Trend Link.
- **Hydra Logger/Trend Link Operations** Relates Hydra *Logger for Windows* operations to Trend Link operations.
- **Getting the Right Look for your Trend Link Chart** Hints for configuring your Trend Link chart to display the data to suit your requirements.

It is assumed that Trend Link is installed as described in Chapter 2, "Installing *Trend Link for Fluke*." For additional reference information on Trend Link, refer to the *Trend Link for Fluke Reference Manual.*

Starting and Stopping Trend Link 5-2.

Trend Link may be started and stopped either from its icon in the Information Links group in Program Manager or within Hydra *Logger for Windows*.

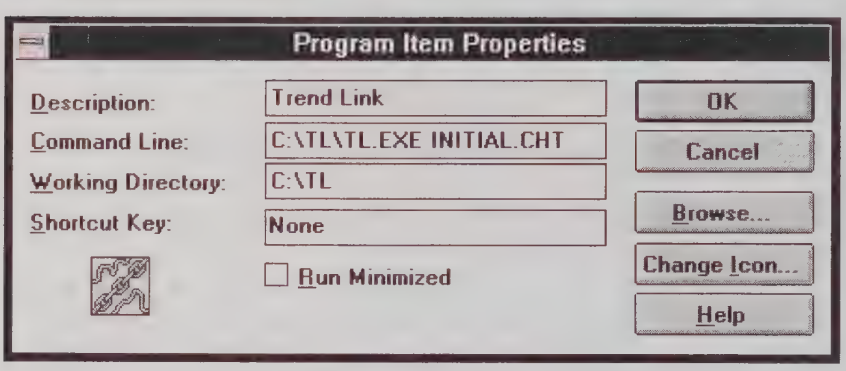
To start Trend Link from Program Manager, open the Trend Link icon from the Information Links group.

To start Trend Link from Hydra *Logger for Windows*, select the Show Trend Link command from the Plot/Trend menu. If Trend Link is already running, this command brings the focus back to Trend Link.

To modify the starting procedure to open *Trend Link for Fluke* from Program Manager while automatically loading a chart file, conduct the following procedure.

1. Select, but do not open, the Trend Link icon in the Information Links group of Program Manager (single mouse button click.)
2. Select the Properties command from the Program Manager File menu to open the Program Item Properties dialog box.

3. Modify the Command Line displayed in the Program Item Properties dialog box by adding the chart filename after the `TL.EXE` command. For example, if the setup filename is `INITIAL.CHT`, the command line would change to `TC:\TL\TL.EXE INITIAL.CHT` (see below). Click OK when the command line is correct.



4. (Optional) To automatically start *Trend Link for Fluke* upon startup of the Windows operating environment, place the Trend Link icon in the StartUp Program Manager group. Windows runs each application placed in the StartUp group when it initially starts. To ensure that Windows starts upon startup of the Host Computer, place the `WIN` command as the last line in the `AUTOEXEC.BAT` file.

To stop Trend Link, select the Close menu item under the Files main menu item in the Trend Link window. If the current chart has been modified and not saved, a prompt to save the chart to a file is displayed before Trend Link operation shuts down.

Hydra Logger/Trend Link Operations 5-3.

This section contains procedures for typical Hydra *Logger for Windows* operations that are related to Trend Link, including the following:

- **Displaying a Trend Link Chart during Logging**
- **Initializing an Existing Trend Link File**
- **Playing Back a Trend Link (SET) File in Trend Link**
- **Playing Back an ASCII (CSV) File in Trend Link**
- **Deleting Old Trend Link Files**

Displaying a Trend Link Chart During Logging 5-4.

Complete the following procedure to display a Trend Link chart in real time during logging. This procedure assumes you have configured Hydra *Logger for Windows* and the Hydras for operation, and have selected Trend Link as the data file format. (See "Hydra Configuration Procedures" in Chapter 3.)

1. Select the desired Hydra on the Icon Bar (the Hydra cannot be logging). Verify in the Main Window that Trend Link is displayed after File Format (see example below). If ASCII or None is displayed after File Format, you will not be able to display a Trend Link chart in real time.

Data File:	testdat.set
→ **File Format:**	Trend Link
Scans Recorded:	All Scans
File Mode:	NA
Auto Rollover:	File Size: 1000 k bytes
Min Free Disk:	Stop Log at 1000 k bytes

2. Click the Start Hydra button on the Button Bar to begin instrument scanning.
3. Select the Show Trend Link command from the Plot/Trend menu to display the Trend Link chart.
4. If this is the first time the Trend Link data file has been used for operations, allow a few seconds for Trend Link to create the directory and files used for the chart, and a few additional seconds if the instrument(s) have 10 or more configured channels.
5. To change the look of the chart, see "Getting the Right Look for your Trend Link Chart" later in this chapter.
6. Click the Stop Instrument button on the Button Bar when you wish to terminate scanning operations.
7. To save any changes that have been made to the chart, select the Save command from the Trend Link File menu. By saving the chart, you can play it back at a later time with full features. If you do not save the chart, it is still saved but with fewer features.
8. Close Trend Link by selecting the Close command from the Trend Link File menu.

9. Choose from one of the following operations:

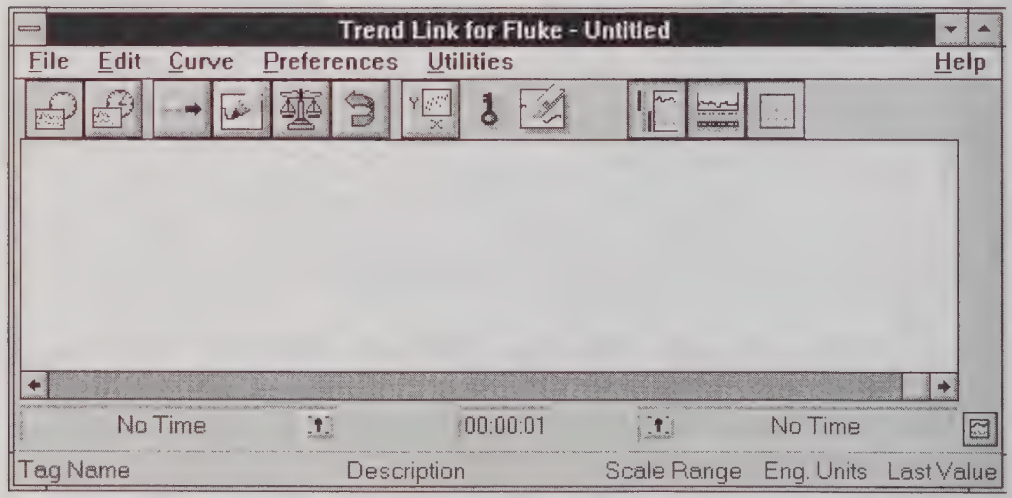
   Playback To play back a chart that has been saved, see "Playing Back a Trend Link (SET) File in Trend Link" later in this chapter.

   Export To export a Trend Link data file to analysis applications such as Excel, Lotus 1,2,3, and MathCAD, see "Exporting Trend Link Data Files" later in this chapter.

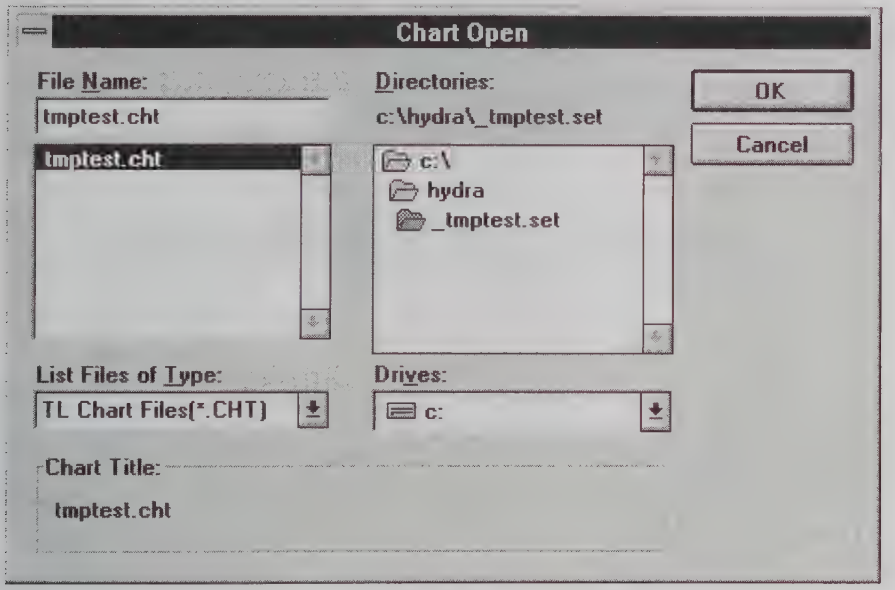
Playing Back a Trend Link (SET) File in Trend Link *5-5.*

Complete the following procedure to play back a Trend Link (SET) data file using Trend Link.

1. Open Trend Link from the Information Links group in Program Manager or select the Show Trend Link command from the Plot/Trend menu in Hydra *Logger for Windows*. A typical Trend Link opening screen is shown below.



2. Select the Open command from the File menu, displaying the Chart Open dialog box (below).



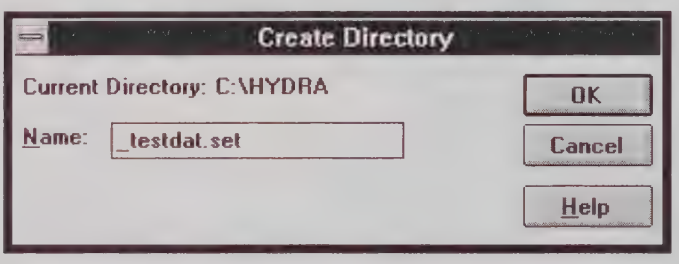
3. Select the Trend Link file you want to play back. For example, `c:\hydra\_tmptest.set\tmptest.cht` (shown above). Click OK.
4. Observe that the selected chart opens. Use the scroll bar at the bottom of the chart to display the measurement area of interest.
5. After viewing the chart or performing other chart operations, select the Close command from the File menu to exit Trend Link. Save the changes as required.

Playing Back an ASCII (CSV) File in Trend Link *5-6.*

You can import standard `*.csv`, Iconics Format `*.prn`, and Fluke Format `*.csv` data files using the Trend Link Import `*.CSV` File utility. For example purposes, the procedure below shows how to import a Fluke Format ASCII (CSV) data file. You can adapt this procedure to standard `*.csv` and Iconics Format `*.prn` as required. Be sure you do NOT import the same ASCII (CSV) file more than once into the same data set because this causes a time stamp conflict.

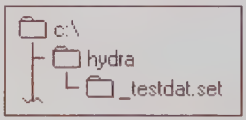
Create a New Trend Link Data Set Directory

1. In the Windows File Manager utility, create a new directory for a Trend Link Data Set in `c:\hydra` by highlighting the `c:\hydra` folder, and then selecting the Create Directory command from the File menu. Use the Hydra Logger convention for Trend Link Data Set directories by starting with an underscore, followed by up to seven characters with the extension `*.set`. For example, creating `c:\hydra\_testdat.set` would appear in the Create Directory dialog box as shown below. Click OK.



   (Hint: You can use the Logger Configurator to create a new Trend Link Data Set Directory. See the documentation supplied with *Trend Link for Fluke*.)

2. Observe that File Manager shows the new directory under `c:\hydra` (below is an example for the directory `_testdat.set`.)



Add the New Directory to the Trend Link `INFOLINK.INI` File

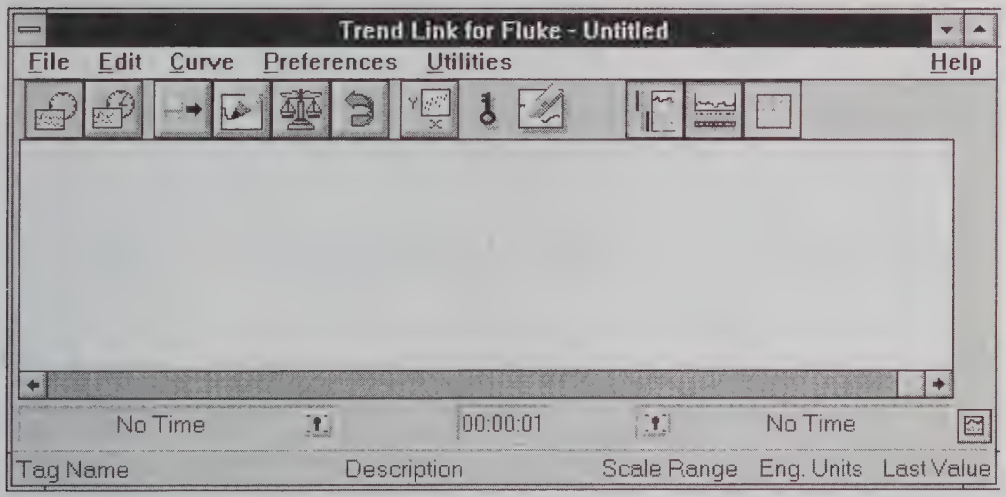
3. While still in File Manager, double-click the file `c:\tl\infolink.ini`, which opens the file in the Windows Notepad accessory. Locate the portion of the file with the heading: `[TL Data Set Paths]`. Add a line under this heading with the name and path for the new Data Set. The format is: `data set name = data set path`. For example, adding the data set name `testdat.set` to the data set path `c:\hydra\_testdat.set` results in the entry shown below.

```
[TL Data Set Paths]
testdat.set=c:\hydra\_testdat.set
```

   Save the changes and exit Notepad.

Import the Hydra ASCII (CSV) File into Trend Link

4. Open Trend Link from the Information Links group in Program Manager.



5. In Trend Link, select the Import CSV Data command from the Utilities menu, displaying the Import `*.CSV` File dialog box. Make the following selections:

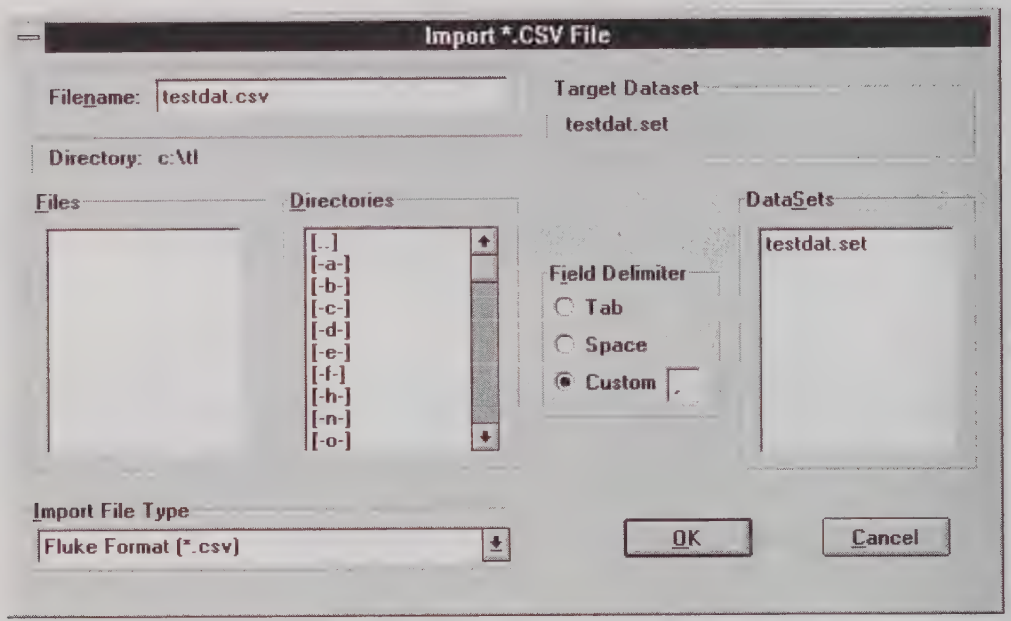
   Target Data Set Double-click the data set you entered in Step 2 in the DataSets box (right side of dialog box) to enter the name in the Target Data Set box. For example, `testdat.set`.

   Import File Type Select Fluke Format (`*.csv`).

   Filename Enter the complete path to the Hydra ASCII (CSV) file you want to play back in Trend Link. For example, `c:\hydra\testdat.csv`.

   Field Delimiter Verify Custom is selected with the comma (,).

An example dialog box is shown below for the file name `c:\hydra\testdat.csv`. Click OK when all selections are made.



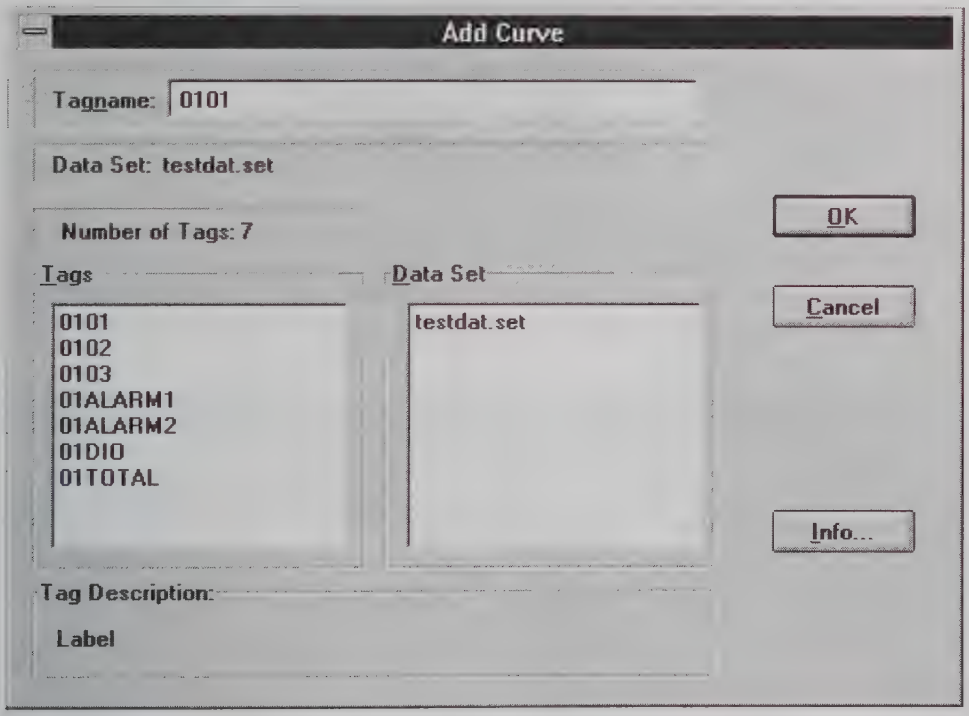
Allow several seconds for the Hydra ASCII (CSV) file to be imported in Trend Link format into the Data Set directory you selected in Step 1.

To verify the file was imported, open the Data Set directory you created, for example `c:\hydra\_testdat.set`. Observe a new file with the extension. `*.tlg`. A new `*.tlg` file is created in this Data Set directory each time this procedure is used.

Make sure you do not accidentally import the same file or files more than once into the same Data Set because this creates `*.tlg` files with identical time stamps.

Display the Trend Link Chart for the Imported Hydra ASCII (CSV) File

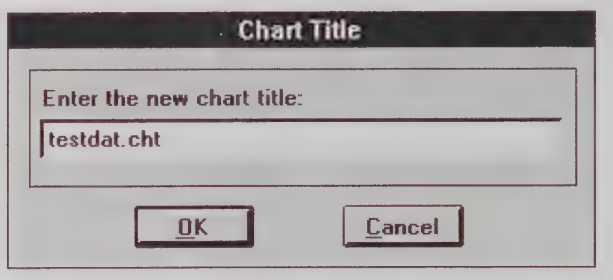
6. Click the Adding a Curve icon on the Trend Link Control Bar to open the Add Curve dialog box. Double-click the name of your Data Set in the Data Set box. Click the desired Tag name (curve) from the Tags box, and then click OK to display the curve. Below is an example of displaying Tag 0101 from the Data Set `testdat.set`. Repeat this step for each curve that you want to examine in Trend Link.



7. Examine the chart and perform any Trend Link procedures to view, print, and so forth. (See "Getting the Right Trend Link Plot Look" later in this chapter.)

Title the Trend Link Chart

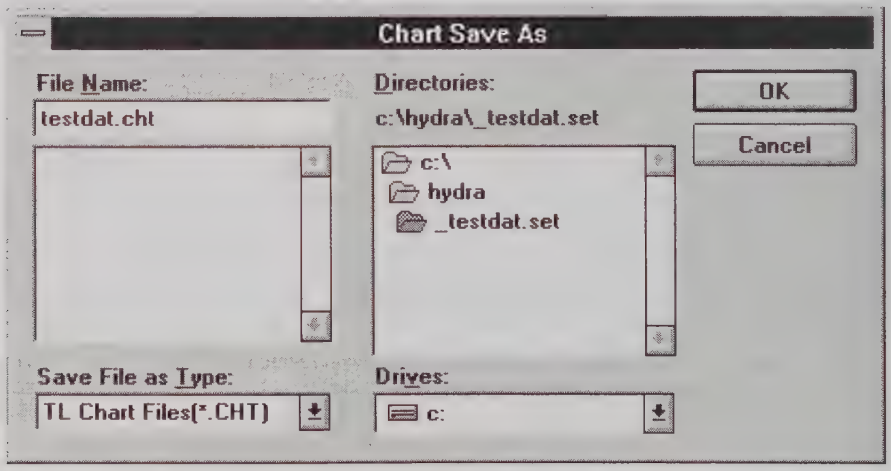
8. Select the Chart Title command from the Preferences menu to open the Chart Title dialog box. The convention is to enter the file name with the `*.cht` extension, e.g., `testdat.cht` (below). Enter the desired title and click OK.



Observe that the entered text appears at the top of the chart in the Title Bar.

Save the Trend Link Chart

9. To save the Trend Link chart, select the Save As command from the File menu. Enter the path to your Data Set directory for the `*.cht` chart. For example, `c:\hydra\_testdat.set\testdat.cht` would appear as shown below. Click OK.



Close Trend Link

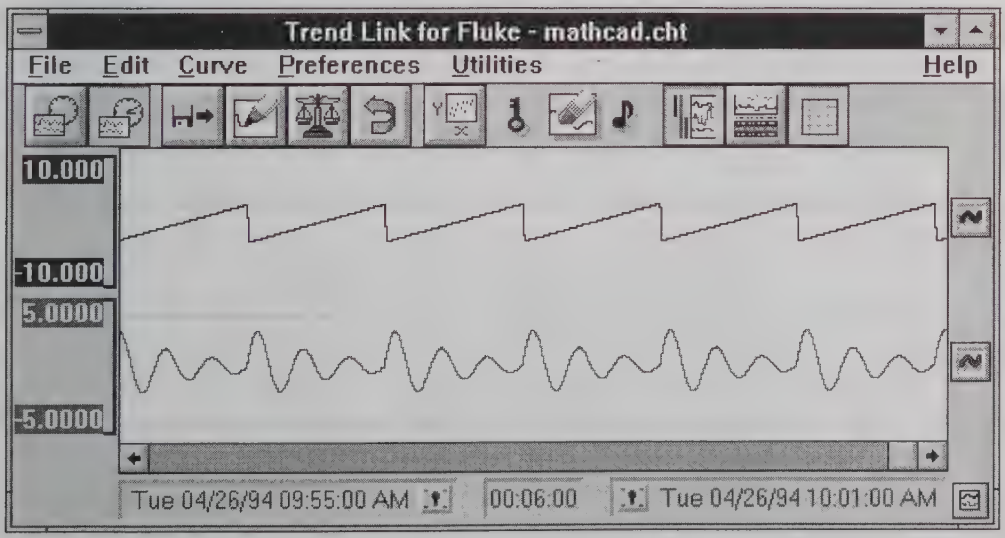
10. To close Trend Link, save the chart by selecting the Save command from the File menu; then select the Close command from the File menu.

Exporting Trend Link Data Files 5-7.

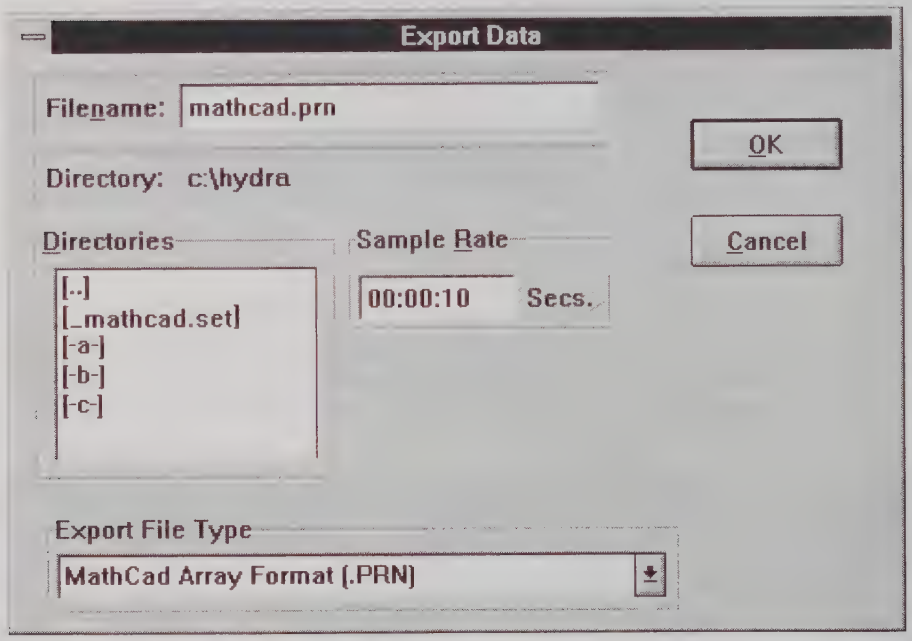
Trend Link can export data files in Trend Link in one of three Export File Type formats: Standard Comma-Separated Values (`*.csv`), MathCAD Array Format (`*.prn`) and Spread Sheet Column Oriented (`*.csv`). Note that the Trend Link `*.csv` formats are *not* compatible with the Hydra *Logger for Windows* ASCII (CSV) data file format.

Complete the following procedure to export a data file from Trend Link. This procedure assumes the Hydra *Logger for Windows* data file for export is already in Trend Link format. If this is not the case, see "Playing Back an ASCII (CSV) File in Trend Link" in this chapter for conversion procedures.

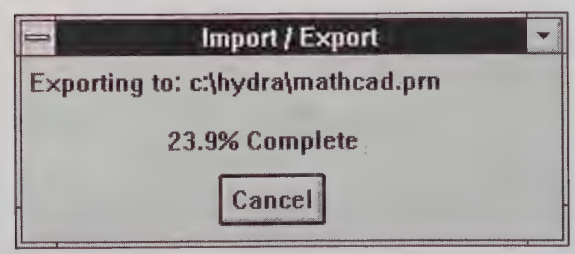
1. Open Trend Link from the Information Links group in Program Manager.
2. Select the Open command from the File menu and select the desired Trend Link file. Click OK.
3. Adjust the Trend Link chart to display the desired data you wish to export. Only the data displayed on the chart is exported! The example below shows 6 minutes of the chart `mathcad.cht` is being exported. (See "Getting The Right Look For Your Trend Link Chart" in this chapter to adjust the display to show the desired data.)



4. Select the Export CSV Data command from the Utilities menu to open the Export Data dialog box. Select the Export File Type, Sample Rate (resolution of the exported data file in the format Hours:Minutes:Seconds), and the name of the exported file. The example below shows the `mathcad.cht` chart is exported in MathCAD Array Format as file `c:\hydra\mathcad.prn` with a sampling interval of 10 seconds. Click OK.



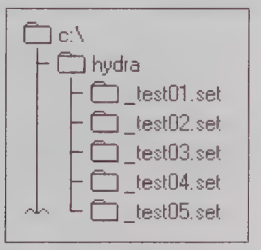
5. Monitor the exporting progress with the Import/Export dialog box (below). If you wish to cancel the export operation, click the Cancel button.



6. Exit Trend Link by selecting the Close command from the File menu.

Deleting Old Trend Link Files *5-8.*

Trend Link opens a directory for every new Trend Link file. In time, the quantity of Trend Link directories may grow to an unnecessarily large number. For example, in File Manager you might see something like the following for data set directories created by Trend Link:



Complete the following procedure to clear the `c:\hydra` directory (for example) of unnecessary Trend Link directories and files. (To remove just directory contents and/or associated `c:\tl\infolink.ini` entries, see the documentation for the Logger Configurator utility supplied with Trend Link.)

1. Open the Windows File Manager utility from the Main group in Program Manager.
2. Highlight the Trend Link directory to be deleted in the (for example) `c:\hydra` directory; then select the Delete command from the File menu. For example, `c:\hydra\_test01.set`. Click OK and then Yes to All in the message box at each request.
3. Highlight the corresponding Trend Link `*.set` file to be deleted in the `c:\hydra` directory; then select the Delete command from the File menu. For example, `c:\hydra\test01.set`. Click OK and then Yes in the message box.
4. Double-click the `c:\tl\infolink.ini` file to display the contents using the Notepad accessory. Delete the line under the heading `[TL Data Set Paths]` that relates to the directory you deleted in Step 2. For example:

   ```
   [TL Data Set Paths]
   test01.set=c:\hydra\_test01.set
   ```

5. Save the changes to `infolink.ini` and exit Notepad.
6. Repeat Steps 2 through 4 for each Trend Link directory and file to be deleted.

Getting the Right Look for Your Trend Link Chart *5-9.*

When you display a Trend Link chart, you can modify the chart appearance to suit your application. There are two primary sources for changing the Trend Link chart look: the Control Bar and menu selections. Each is described below.

Using the Trend Link Control Bar *5-10.*

The Control Bar in the Trend Link window (below) allows you to quickly modify the chart display for your requirements.

The function of each button is described below. See the *Trend Link for Fluke Reference Manual* for more information on menu items and other Trend Link capabilities.

Historical Mode Click the Historical Mode button to freeze the chart during the Real-Time Mode, allowing you to use the cursor bar at the bottom of the chart to back up to any portion on the recorded chart. If you are collecting measurement data using the Real-Time Mode (below), you do not lose data while you are in the Historical Mode.

Real-Time Mode Click the Real-Time Mode button to view measurement data collection in real time.

Measurement Cursor While anywhere in the chart display area, click and hold the left mouse button to display the measurement cursor, allowing you to select any data point on the chart for analysis as to time and measurement value. Release the mouse button.

Grid Lines On/Off Click the Grid Lines button to turn the chart background grid lines on and off.

Curve Status Window Click the Curve Status Window button on and off to display or not display the Curve Status Window at the bottom of the chart. Each Curve Status Window is color-coded to the curve trace along with the Curve Symbol.

icon. The Curve Status window Tag Name is the name of the Trend Link Data Set and channel number; Description is the channel label you entered for the channel (if any – the default is Label); Scale Range is the current range for the curve; Eng. (Engineering) Units is the function units label (degrees, etc.); and Last Value is the most recent scan measurement.

Curve Band Bars Click the Curve Band Bars button on and off to display or not display a bar to the left of the chart with the upper and lower measurement boundaries. With the bars displayed, click on the bottom edge of the lower number display and drag the bar upwards to change the size of the Curve Band Bar. Notice how this positions the plot in the chart. Try the same thing with the upper number or anywhere in the bar area to position the scale for the chart.

Setting a Fixed Range Setting a Fixed Range freezes the range of the display. First, uncheck the Dynamic AutoScale box in the Preferences menu; then double-click the Curve icon to open the dialog box for curve parameters. Enter a fixed scale in the High and Low boxes. Click OK. Notice the Curve Band Bars show the scale you entered, and the curve is no longer autoscaling.

Setting Autoscaling To clear a Fixed Range and return to autoscaling, click the AutoScale button. Notice how the fixed range you entered in Setting a Fixed Range is cleared.

Erasing a Curve Click the Erasing a Curve icon, and while holding the mouse button down, drag the Eraser icon on top of the Curve Symbol and release the mouse button. The curve is erased.

Adding a Curve Click the Adding a Curve button to open the Add Curve dialog box. Double-click the desired `*.set` line in the Data Set box to display the available Tags. Double-click the desired tag in the Tags box to add the curve.

Adding Notes Check the Note System box in the Preferences menu, displaying the Note icon on the Control Bar. Click the Historical Mode button to freeze the chart. Drag the Note icon to any point on the curve (it must touch part of the curve) and release. In the Note dialog box, add some sample text; then click OK. Click Yes in the Add Note message box. Double-click the Note icon on the curve to review your text. Click OK.

Locking a Time Click the Historical Mode button to freeze the chart. Click the Key icon and drag it to the left-hand Lock icon; then release the mouse button. The Key remains in the latch, locking the left-hand time scale. Click the left-arrow on the cursor bar and notice the left-hand time-base remains locked, giving the effect of expanding the curve. Click the Real-Time Mode button to resume the real-time display and return the key to the Control Bar, or click the right-arrow on the cursor bar to compress the data analysis.

XY Curve Plot This feature gives you a chart of the differences between two charts. Click the XY Curve Plot button, which displays an X symbol. Position the X symbol over the upper Curve icon and click again. The X symbol changes to a Y symbol. Position the Y symbol over the lower Curve icon and click again. This displays the XY Curve Plot window, which displays the differences between the charts. Click OK to return to the chart.

Undo and Redo Click the Undo/Redo button to undo any time change made and return to the original time.

Open an Existing Chart Click the Open Chart button to display the Chart Open dialog box. Double-click on the desired existing file to open an existing chart. You are prompted if you want to save the current chart.

Control Bar/Control Window Click the Show/Hide Control Bar icon on and off to observe the show/hide function of the Control Bar and Menu Bar. Toggle the Control Bar and Menu Bar on. Check the Control Window box in the Preferences menu to show the controls in a window that you can position in the chart. Check the Control Bar box in the Preference menu to return the controls to their fixed location.

Using the Trend Link Menus *5-11.*

The Trend Link menus (below) allow you to modify the chart display appearance and functionality for your requirements. Menu functions repeated on the Control Bar are not discussed in this section. (See "Using the Trend Link Control Bar.") Refer to the *Trend Link for Fluke Reference Manual* for complete information on the Trend Link menus because this section only highlights the menu functions.

File Edit Curve Preferences Utilities Help

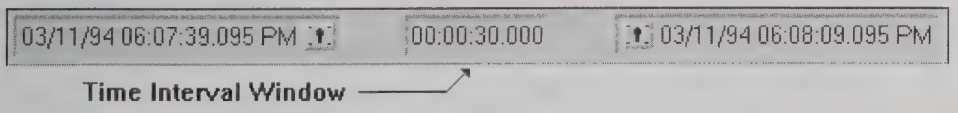
This section contains the following common menu procedures:

- **Adjusting the Curve Time Scale (X-axis)**
- **Adjusting the Curve Amplitude Scale (Y-axis)**
- **Configuring the Curve Status Display**
- **Curve Preferences**
- **Background Preferences**
- **Real-Time Frequency Update**
- **Adding or Changing the Chart Title**
- **Using the Note System**
- **Printing a Chart**

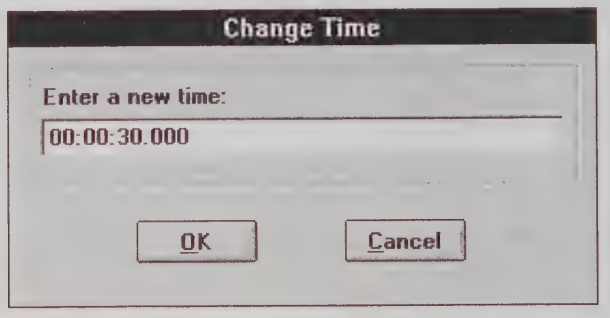
Adjusting the Curve Time Scale (X-axis) *5-12.*

Complete the following procedure to adjust the curve time scale (X-axis).

1. Double-click the Time Interval Window at the bottom of the chart (below) to open the Time Change dialog box. (Note: You may select second or millisecond Time Interval resolution using the Millisecond Display command from the Preferences menu, e.g., 00.00.30 or 00.00.30.000.)



2. In the Time Change dialog box (below), enter the time for the curve display, that is, the time from the left edge to the right edge of the curve. The format is 00:00:00.000 (hours:minutes:seconds.fraction). For example, 00:00.30.000 represents 30 seconds. Click OK. You can only enter a time that is equal to or less than the overall recorded chart time. For example, if you have been collecting data for 6 hours, you can enter a number up to 6 hours. (For this operation, be sure the bottom scroll bar is positioned to the far right.)



To zoom in on a portion of the curve, double-click in the chart at each point that you want to expand. The chart then displays the portion you selected.

(Hint for the Advance User: You can enter any number for the Time Interval Window by editing the associated `*.cht` file using the Notepad accessory. For example, `c:\hydra\_testdat.set\testdat.cht`. Open the `*.cht` file in Notepad, find `[Section: Curve Window]`, and add the line `Curve Window Interval Time=nnnnnnn`, where `nnnnnnn` is the time in milliseconds (see the example below for 1 hour):

```
[Section: Curve Window]
Curve Window Interval Time=3600000
```

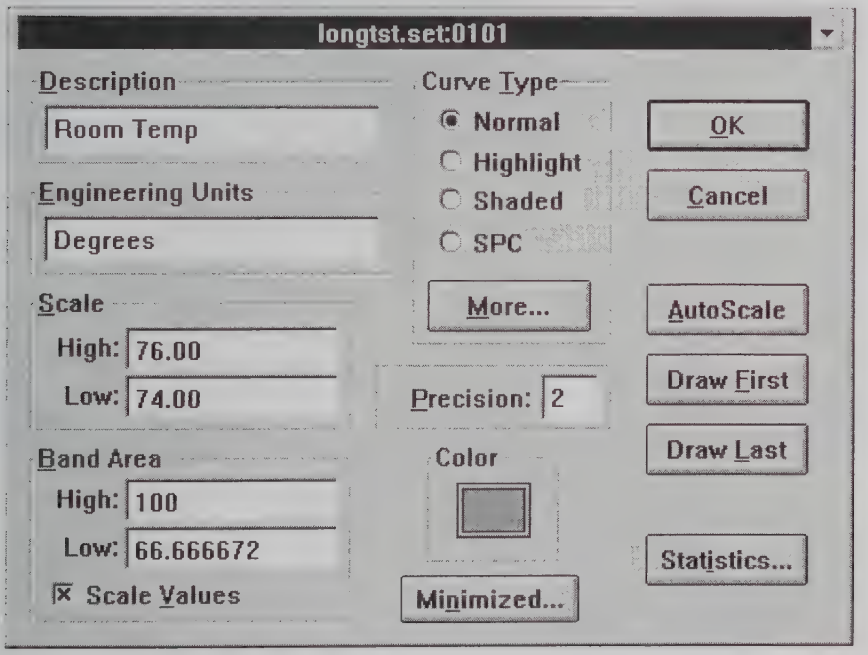
Save the changes and close Notepad. The next time you open this chart, the entered value appears in the Time Interval Window.

To create a default change so that all created charts have a selected preset value in the Time Interval Window, make the above change to `c:\hydra\tldef.cht`.)

Adjusting the Curve Amplitude Scale (Y-axis) *5-13.*

Complete the following procedure to adjust the curve amplitude to a fixed scale (Y-axis).

1. Uncheck Dynamic AutoScale in the Preferences menu.
2. Double-click the curve icon at the right side of the chart to open the curve preference dialog box (below). Enter the desired fixed scale in the Scale High and Low text boxes. Click OK. For more information on the curve preference dialog box, see "Curve Preferences."

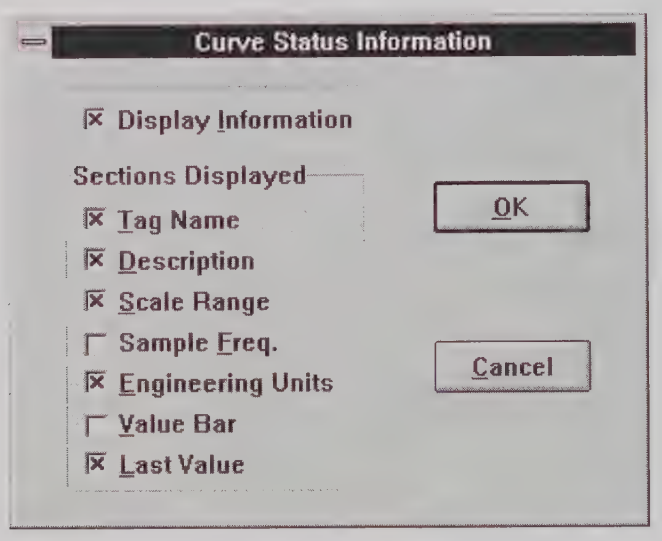


Configuring the Curve Status Display *5-14.*

Complete the following procedure to select the elements of the Curve Status display. The Curve Status display is the window at the bottom of the chart containing the parameter information of the associated curve (see below).

(The Curve Status is turned on and off by the Curve Status Window button on the Control Bar. See "Using the Trend Link Control Bar.")

1. Select the Curve Status Info command from the Edit menu to open the Curve Status Information dialog box (below).

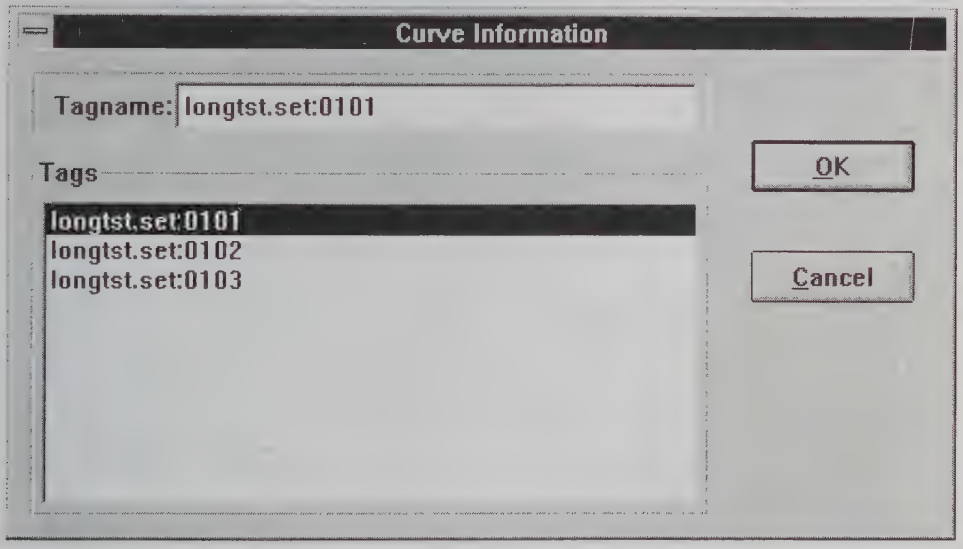


2. Select the desired features of the Curve Status display by checking or unchecking each of the Sections Displayed listings. Click OK.

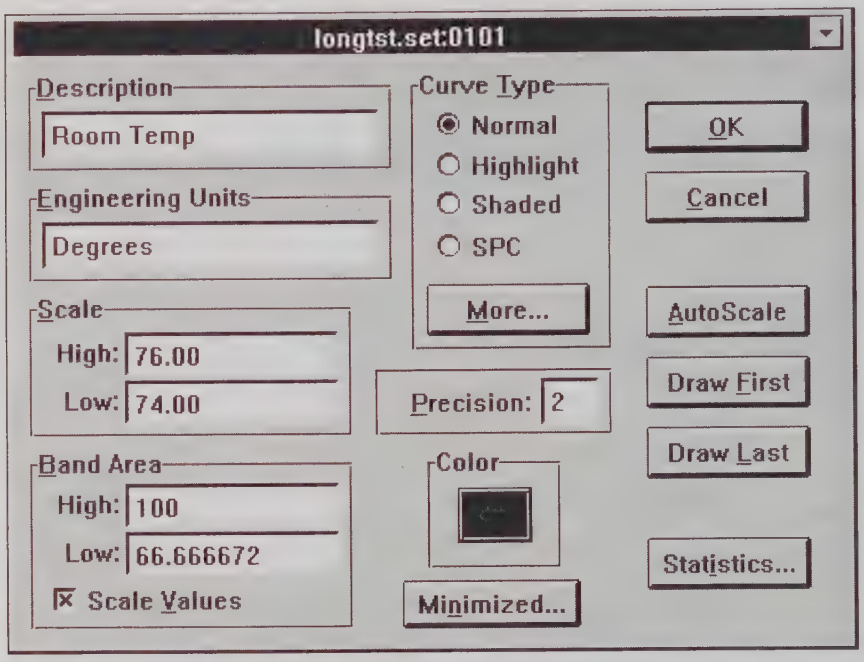
Curve Preferences *5-15.*

Complete the following procedure to select the curve preferences. Each curve on the chart can be customized for various attributes, such as changing the color, adding a fixed range, and positioning one curve on top of another.

1. Select the Curve Information command from the Curve menu to open the Curve Information dialog box (below).



2. Click on the desired curve listed in the Tags box, which then appears in the Tagname box. Click OK to open the Curve Parameters box (below). (This dialog box can also be opened directly by double-clicking the Curve icon.)



3. The title of the selected curve appears as the dialog box title. Each dialog box entry has the following characteristics:

   Description The Description characters are entered in Hydra *Logger for Windows* as a channel label (up to 15 characters).

   Engineering Units The Engineering Units characters are entered in Hydra *Logger for Windows* as a units label. The defaults are VDC, VAC, Ohms, Degrees, Hz, Amps, and Percent for analog channels. You can enter a custom units label of up to 9 characters, e.g., Battery V and PSI.

Scale The High and Low entries fix the displayed curve scale. (The Scale entries are ignored if you have checked Dynamic AutoScale in the Preferences menu.)

Band Area The High and Low entries represent the percentage range of the curve window to which the curve is scaled. Band values of 100 and 0 represent the whole curve window, while values of 50 and 0 represent the bottom halve of the curve window. To show numbers on the band, check Scale Values. Otherwise, only the band is displayed.

Curve Type Select the type of curve: normal, highlight, shaded and SPC (Statistical Processing Control). If the Hydra *Logger for Windows* channel alarm values have been enabled, the curve type is "highlighted" and the Trend Link limit values are set with the appropriate alarm values.

Precision Precision refers to the number of digits to the right of the decimal point for the scale values that appear in the Curve Status window and Band Bars. For example, a Precision entry of 0 would show scale values of 70 and 80; an entry of 1, values of 70.0 and 80.0, all the way to an entry of 7 for values of 70.0000000 and 80.0000000.

Color Click here to select the color of the curve trace.

More Button Click the More button to open the Curve Options dialog box for the type of curve selected under Curve Type.

Minimized Button Click to Minimize the dialog box, which, after you select the values in the Floating Window Options dialog box, can then become a floating window during Real-Time scanning. The floating window contains the name of the curve and data value of the last value on the curve.

AutoScale Button on the Control Bar provides the same function, that is, to clear a fixed range and return to autoscaling.

Draw First Button This causes the curve to be on the top over all other curves.

Draw Last Button This cause the curve to be on the bottom under all other curves.

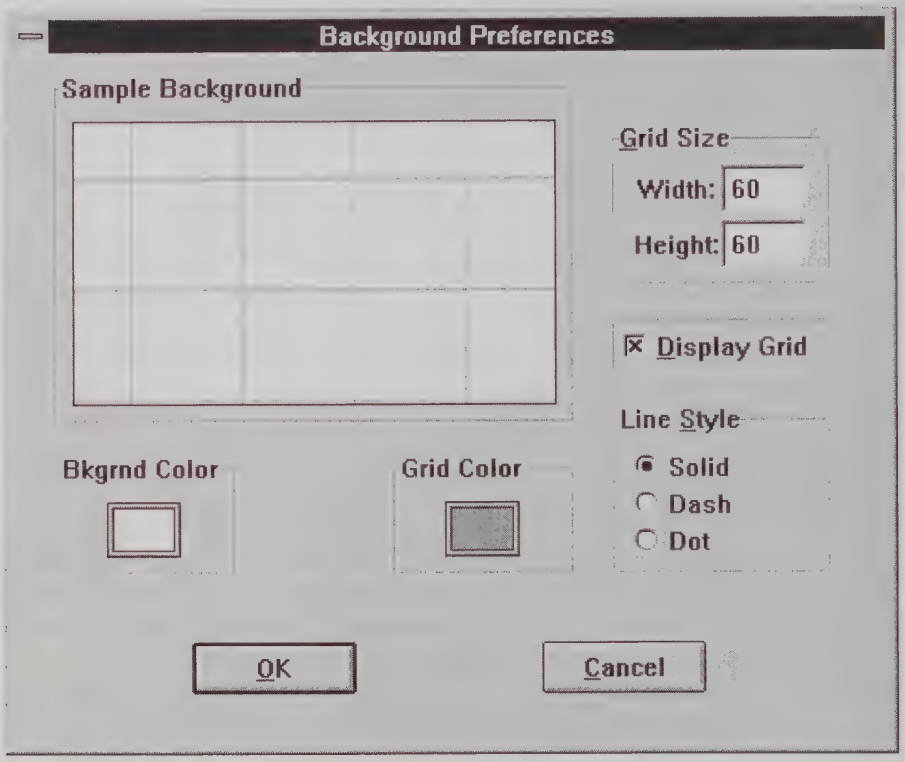
Statistics Button Opens the display for the statistics of the curve, including Histogram, Box Plot, Sum, Mean, and Standard Deviation values.

4. After making your selections in the dialog box, click OK.

Background Preferences 5-16.

Complete the following procedure to select the background preferences. Background preferences select the curve background color and grid appearance.

1. Select the Background command from the Preferences menu to open the Background Preferences dialog box (below).



2. The dialog box entries are as follows:

   Grid Size Select a grid size between 0 and 1000. Typical values are 25, 30, 50, 60, etc.

   Display Grid This is the same as selecting the Grid Lines On/Off icon on the Control Bar.

   Line Style Choose the style of grid line.

Bkgrnd [Background] Color Choose the background color.

Grid Color Choose the color of the grid. The color of the traces are selected in the curve preferences dialog box (See "Curve Preferences" in this chapter.)

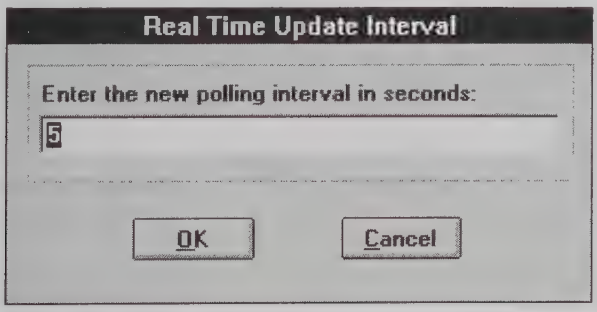
3. Make your selections in the Background Preferences dialog box; then click OK.

Real-Time Frequency Update *5-17.*

The real-time frequency should be modified if the trend plot cannot be completely updated in the time interval specified. This effect can be seen when the plot lines are not completely drawn to the left side of the chart before updating starts over. This usually happens when real-time data collection is occurring at too high a rate for Trend Link to keep up or when the Host Computer is too slow to operate data collection and trend plotting at the same time.

Complete the following procedure to modify the frequency update period for the real-time display. The default (and minimum time) is 1 second. The maximum entry is 1410065 seconds.

1. Select the Real Time Freq command from the Preference menu to open the Real Time Update Interval dialog box (below).

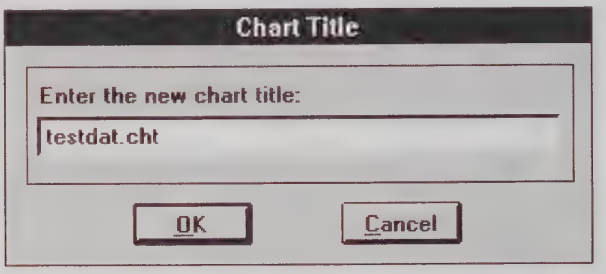


2. Enter the desired number of seconds for the real-time interval. The range is 1 to 1410065. You cannot enter fractions of seconds. Click OK.

Adding or Changing the Chart Title *5-18.*

Complete the following procedure to add or change the title of the chart at the very top of the chart window. By convention, the title is the name of the Trend Link file with the `*.cht` extension, for example, `testdat.cht`. However, you can use this procedure to enter any custom title to suit your requirements.

1. Select the Chart Title command from the Preferences menu to open the Chart Title dialog box (below). Enter the chart title name in the text box, for example, `testdat.cht`. Click OK.



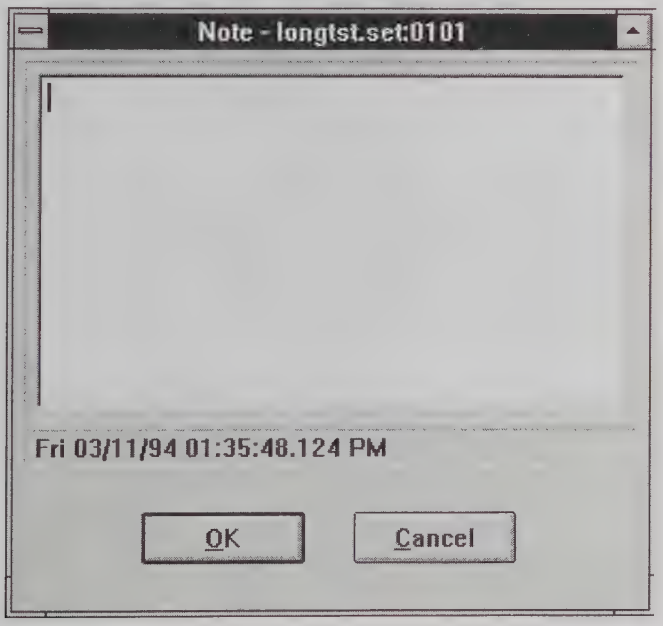
2. Observe the entered text appears at the top of the chart in the Title Bar. (Below is an example.)

Using the Note System *5-19.*

Complete the following procedure to add a text note to a curve. Notes can be added to a historical curve to comment on a particular event (voltage spike, gap in the data, etc.).

1. Check the Note System command in the Preferences menu to place the ♪ Note symbol on the Control Bar.

2. To add a note to a point on an historical curve, drag the note icon to a point on the curve and release. If you are scanning in real time, click the Historical Mode icon to freeze the chart. The text box for the note opens, and also the time and date on the curve is listed (below is typical).



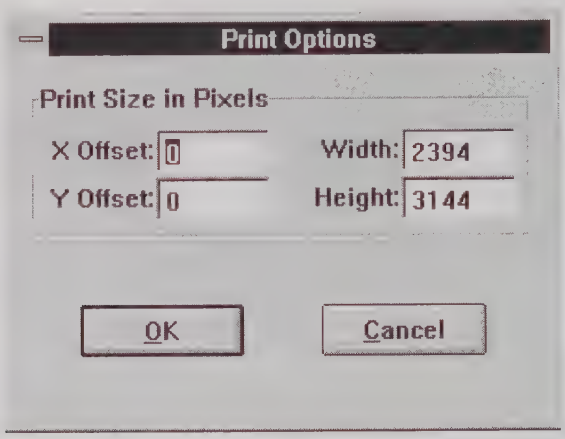
3. Enter the desired text (up to 1024 characters) in the text box; then click OK.
4. In response to the Add note permanently to curve? message, click Yes.
5. As a test, double-click the Note symbol you just created to view the note text. Click OK.
6. If applicable, resume real-time scanning by clicking the Real-Time Mode icon.

Printing a Chart *5-20.*

Complete the following procedure to print a Trend Link chart. Only the portion of the chart that is displayed on the screen is printed.

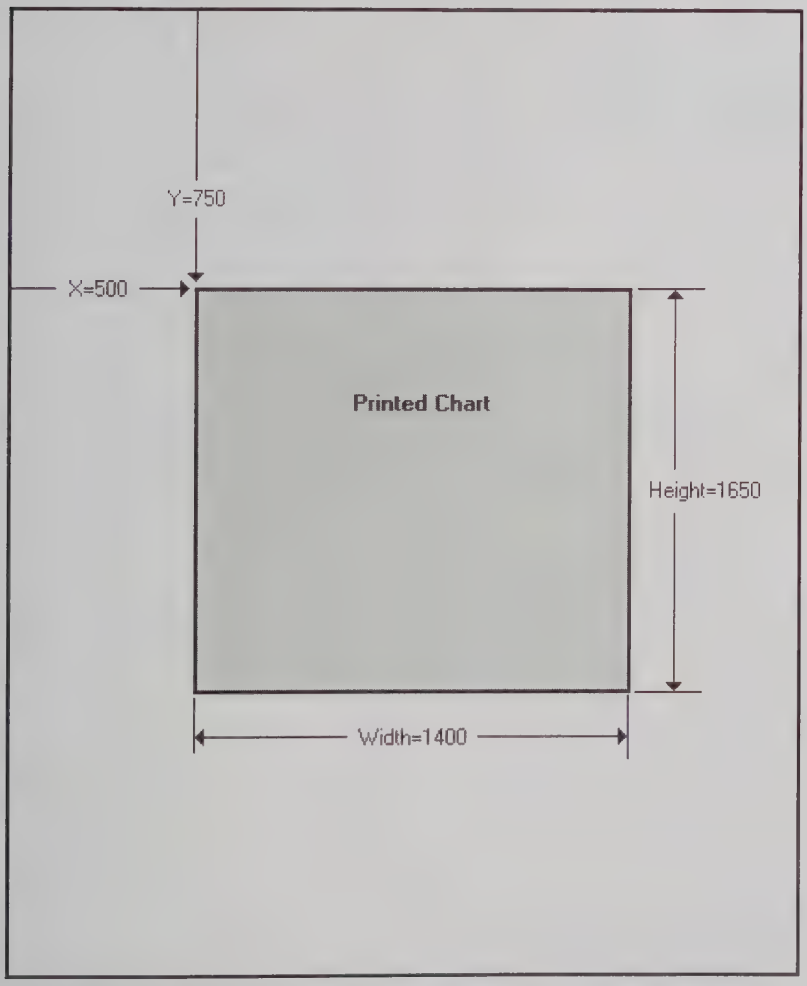
1. Display the portion of the chart to print on the screen.

2. Select Print command from the File menu to open the Print Options dialog box (below).



You can position and size the printed chart by entering X and Y Offsets and Width and Height settings. The X and Y Offsets specify the position of the upper-left corner of the printed page, and the Width and Height determine the size of the printed chart. If you enter impossible values, a default (full-page) chart is printed.

For example, X=500, Y=750, and Width=1400, Height=1650 results in the following printed chart:



3. Click OK to print the chart. (The chart is sent to the printer selected in the Windows Print Manager.)

Chapter 6
Maintenance

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6-2. Hydra *Logger for Windows* Replacement Parts 6-3

Introduction 6-1.

Maintenance procedures in this manual are limited to a listing of replacement parts. Refer to the following Hydra manuals for Hydra maintenance information:

- **2625A Hydra Data Logger** *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (Part Number 885988)
- **2635A Hydra Data Bucket** *Hydra 2635A Data Bucket Users Manual* (Part Number 931894)

A Hydra Service Manual (Part Number 889589) is available for purchase. This Service Manual covers three Hydra instruments: 2620A Data Acquisition Unit, 2625A Data Logger, and 2635A Data Bucket.

Hydra Logger for Windows *Replacement Parts* 6-2.

Replacement parts are shown in Table 6-1. To order replacement parts in the USA, call 1-800-526-4731 or contact the nearest Fluke Service Center. (See Appendix E for a list of Service Center locations.) Other Hydra *Logger for Windows* models, options, and accessories are listed in Table 1-2.

Table 6-1. Hydra *Logger for Windows* Replacement Parts

Part Number	Description
106457	Hydra *Logger for Windows* Users Manual
938167	Mouse Pad
944322	*Trend Link for Fluke* Reference Manual

Appendixes

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Appendix A
Specifications

Introduction

Specification for the Hydras may be found in one of the following manuals:

- **2625A Hydra Data Logger** *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (Part Number 885988)
- **2635A Hydra Data Bucket** *Hydra 2635A Data Bucket Users Manual* (Part Number 931894)

Appendix B
ASCII File Format

File Formats

The ASCII format is compatible with data analysis and management tools running simultaneously in other computers on a network. Data files are opened in SHARED mode with write blocked. This enables reads but no writes of the data file while scan data is being recorded. Between scans, the file is closed, allowing full access to the file (including delete if allowed by the security level enabled on the Host Computer). If the file disappears between one scan and the next, a new file (including header and with the previous file name) is created before new scan data is recorded.

The comma-separated ASCII file format is as follows (<EOL> means "end of line", a <CR><LF> sequence):

- File name string (< 15 characters) followed by:
- Special format (internally used) string (8 characters) <EOL>
- Date and time file was created <EOL>
- Memory Card Tag (21 characters), File Comment (< 70 characters) <EOL>
  The Memory Card Tag appears only for data files uploaded from a memory card. The tag is the date and time the memory card data file was created, e.g.,
  `; 10/25/95 16:48:13`
- Number of Hydras (always 1) <EOL>
- Channel Units string (25 comma-separated strings) <EOL>
- Scan Record 1 <EOL>
- Scan Record n <EOL>

Each scan record consists of the Hydra time stamp (the user's choice of absolute time, date/time string, or elapsed time) and a comma-separated list of channel readings (including the DIO word, and totalizer). The strings are surrounded by quotes to allow direct importation into spreadsheet programs and other data analysis and presentation packages.

In this format, each recorded scan consumes about 300 bytes. A 1-megabyte file can store about 3330 scans.

Appendix C
Error Messages

Introduction

This appendix provides a summary of all possible Hydra *Logger for Windows* error messages. The following paragraphs identify the group messages; this is followed by the individual messages found in each group.

Group Error Messages

Error Messages

A variety of error messages may occur during operation of the Hydra *Logger for Windows* package. Check the list below for clues as to what caused the error, and refer to the individual error messages that follow.

Errors When Starting Application

Error registering window class!

No timers available! Close another application and try again!

Unable to initialize DDE!

Window creation failed!

Errors When Starting Hydra

Hydra X: Calibration Corrupted! Continue?

Hydra X: Date/Time Corrupted! Check Hydra clock.

Hydra X: Execution Error!

Hydra X: N scan(s) in Hydra memory will be lost! Continue?

Hydra X: No channels defined!

Errors When Opening or Creating New Windows

Low on memory!

Maximum number of Hydras reached!

Unable to Create Quick Plot Window!

Errors When Logging

Cannot close application while Hydras are logging!

Hydra X: Cannot change Configuration while logging!

Hydra X: Communication Interruption!

Hydra X: Hydra Scan Memory Full!

Hydra X: Unable to Stop Hydra Scanning!

Hydra X: Unable to Write to Data File!

WARNING: Only X bytes of free disk space remain on Y for Trend Link data!

File Related Errors

Cannot write to `HLOGGER.INI` file!

File Size must be between 200 and 100000!

Hour of Day must be between 0 and 23!

Hydra X already has this filename!

Invalid Scans To Skip Value!

Minimum free disk space must be between 0 and 100000!

Not enough disk space to save the file!

Setup File is Invalid!

Time Interval must be between 1 and 99!

Unable to Create Configuration Text File!

Unable to Open Setup File!

Unable to Write to Configuration Text File!

Unable to Write to Setup File!

Communication Errors

Hydra X: Hydra Command Error!

Hydra X: Hydra Execution Error!

Hydra X: Not enough memory to perform operation!

Hydra X: RS-232 Communications Error!

Hydra X: Time-out waiting for Hydra!

Hydra X: Unable to initialize communications port!

Hydra X: Unsupported model or version of Hydra!

Errors In Setting Up Channels

4-Wire Measurements not allowed on channels 0,11-20!

Entered values do not generate valid Mx+B values!

Invalid Factor (M) Value!

Invalid Maximum Value for Display Range!

Invalid Maximum Value for Input Range!

Invalid Minimum Value for Display Range!

Invalid Minimum Value for Input Range!

Invalid Offset (B) Value for Display Range!

Invalid Scan Interval Entry!

Minimum and maximum values for Input Range must be farther apart!

Must Select Function for Monitor Channel!

Must Select Monitor Channel for Monitor Alarm Trigger!

Must Select Monitor Channel for Monitor Lock!

TC Measurements not allowed on Channel 0!

Quick Plot Related Errors

Unable to Create Quick Plot Window!

Invalid Plot Maximum Value!

Invalid Plot Minimum Value!

Invalid Time Span Entry!

Maximum number of channels reached!

Not enough memory for number of channels selected!

Plot Maximum must be larger than Plot Minimum!

This channel is already in the list!

Memory Card Operation Errors

File Conversion Failed!

File Does Not Exist!

Formatting Has Failed!

Hydra Execution Error!

Instrument does not support memory card!

Invalid Memory Card File Name Selected!

Load Configuration Failed!

Memory Card Battery Is Low!

Memory Card Directory Too big!

Memory Card Is Not Reliable Due To Battery!

Memory Card Is Write Protected!

No Destination File Selected!

No Memory Card File Selected!

Not Enough Disk Space for Conversion!

Save Configuration Failed!

Unable to Delete Memory Card File!

Logging Memory Upload Errors

Invalid scan entries!

No scans left in instrument memory!

Trend Link Interface Errors

Attempt to start Trend Link failed!

Cannot access specified drive for Trend Link data!

Cannot add File Name to the Trend Link Data Set!

Cannot add tag to the Trend Link Data Set!

Cannot create Trend Link Data Set directory!

Cannot write to Trend Link Data Set!

Cannot write to Trend Link `infolink.ini`!

Error returned from Trend Link function!

Selected Trend Link Data Set already contains data for instrument!

There is not enough free disk space for the Trend Link Data Set files!

Time earlier than existing Trend Link data!

Trend Link Data Set file not found!

Trend Link file prefix must be 7 characters or less!

Unable to create Trend Link Data Set chart file!

Unable to get a Trend Link DLL function address!

Unable to load Trend Link DLL!

Unable to read Trend Link default template chart file!

WARNING: Only X bytes of free disk space remain on Y for Trend Link data!

Individual Error Messages

4-Wire measurements not allowed on channels 0,11-20!

4-wire measurements are not allowed on channel 0 and channels 11 through 20. Choose some other channel function.

Attempt to start Trend Link failed!

Could not start Trend Link. If the path to the Trend Link directory has changed, use the Add Trend Link command in the Plot/Trend menu to change the path to the Trend Link program.

Calibration Corrupted!

The Hydra's calibration constants have been corrupted. The Hydra instrument needs to be re-calibrated. See the Hydra manual's maintenance chapter for information on servicing the instrument.

Cannot access specified drive for Trend Link data!

Check drive selection. If this is a network drive, check the state of the network server.

Cannot add File Name to the Trend Link Data Set!

Check amount of free disk space available.

Cannot add tag to the Trend Link Data Set!

An attempt to add a tag (channel) to a Trend Link Data Set failed. Check file and directory permissions and amount of remaining disk space.

Cannot Change Configuration While Logging!

This message appears if you attempt to copy a Hydra configuration from one Hydra to a Hydra that is currently logging. Use Stop Hydra to stop logging on the Hydra you are copying to before attempting to change its configuration.

Cannot close application while Hydras are logging!

You must stop logging on all Hydra instruments before exiting Hydra *Logger for Windows*. Use Stop All Hydras under the Logging menu to stop logging on all Hydras; then exit the application.

Cannot create Trend Link Data Set directory!

Check that the directory permission is not set to Read-Only, check the path for your data file to make sure the directory path allows access, and verify you have sufficient disk space for the new directory.

Cannot write to HLOGGER.INI file!

The `hlogger.ini` file contains setup information for the Hydra *Logger for Windows* program. An attempt was made to write to this file and this failed. Check file and directory write permissions.

Cannot write to Trend Link Data Set!

An attempt to write to a Trend Link Data Set failed. Check file and directory write permissions.

Cannot write to Trend Link infolink.ini!

The Trend Link `infolink.ini` file must be modified to add a new Data Set.

The Trend Link `infolink.ini` file is either missing, corrupted, is from a previous version of Trend Link, or is write-protected. Trend Link will look for the `infolink.ini` file in one of three places. The default location is in the `c:\tl` directory. Refer to Chapter 9 of your *Trend Link for Fluke* reference manual for more information. Check your Trend Link installation or reinstall Trend Link using the procedures in the Hydra *Logger for Windows* manual.

Communication Interruption!

Communication with the Hydra instrument has been interrupted. Check the Logging Status window for the current communication status. If the total number of errors for the Hydra continually increase, communication is still being interrupted.

To prevent this error message from reoccurring, click on the Disable this warning check box. The error message is not displayed again until you exit and restart Hydra *Logger for Windows*.

Date/Time Corrupted!

The Hydra instrument no longer contains a valid date and time. Press the <Shift> INTVL button on the front panel of the Hydra instrument to ensure that the date and time are correctly set. This message can also occur if the Hydra's internal clock has failed. In this case, see the Hydra manual's maintenance chapter for information on servicing the instrument.

Entered values do not generate valid Mx+B values!

The entered values generate M and B values that are outside the valid range for single precision floating point.

Error registering window class!

The application was unable to register the window class. This error can occur if not enough memory is available. Close some applications, or exit and restart Windows; then try again.

Error returned from Trend Link function!

A tbase DLL function returned the indicated error. Refer to the Trend Link reference manual for more information.

File Conversion Failed!

The file was read from the memory card, but conversion to the proper format failed.

File Does Not Exist!

A memory card operation was attempted on a file that was not found on the memory card.

File size must be between 200 and 100000!

The file size to trigger a data file rollover must be between 200 and 100000 K Bytes.

Formatting Has Failed!

Memory card formatting failed. Check write protection.

Hour of Day must be between 0 and 23!

The time to trigger a data file rollover must be in hours between 0 (midnight) and 23 (1 hour before midnight).

Hydra Command Error!

The Hydra received a command it did not recognize, probably due to a communication error. Retry the operation.

Hydra Execution Error!

The Hydra could not execute a command, possibly due to a communication error. Retry the operation.

If this error is displayed when starting logging on a 2635A Data Bucket with memory card data recording enabled, check the memory card status. Scanning cannot be started with data going to the memory card if there is a memory card error (card not present, not formatted, file error, etc.) Check if the memory card is firmly seated in the socket.

If this error is displayed when attempting a memory card file conversion or other file operation on a card located in a 2635A Data Bucket, check if the instrument is actively scanning its channels. Memory card data transfer cannot be started if scanning is active in the instrument. Use the instrument front panel SCAN button to turn scanning off.

Hydra Scan Memory Full!

Hydra scan memory is full. This condition occurs when scans are being logged faster than Hydra *Logger for Windows* can retrieve them and the scan memory eventually fills up. This may be caused by frequent or prolonged communication interruptions that prevent Hydra *Logger for Windows* from collecting scans fast enough, or by the Hydras being configured for short scan intervals so that Hydra *Logger for Windows* cannot keep up even under ideal communication conditions.

This error can also occur if communication with the remote Hydra was temporarily interrupted. When communication is restored, the application queries the Hydra instrument's scan memory. If the Hydra responds that its scan memory is full, this message is displayed.

When Hydra scan memory becomes full, the Hydra instrument either overwrites the oldest scans in memory or stops storing new scans. The oldest scans are overwritten if the Wrap-Around Logging Mode has been enabled in the Hydra configuration dialog.

Hydra X Already Has This File Name!

Another Hydra has already been associated with this filename. Multiple Hydras cannot log data to the same file.

Hydra X: Calibration Corrupted!

The Hydra's calibration constants have been corrupted. The Hydra instrument needs to be re-calibrated. See the Hydra manual's maintenance chapter for information on servicing the instrument.

Hydra X: Cannot Change Configuration While Logging!

This message appears if you attempt to copy a Hydra configuration from one Hydra to a Hydra that is currently logging. Use Stop Hydra to stop logging on the Hydra you are copying to before attempting to change its configuration.

Hydra X: Communication Interruption!

Communication with the Hydra instrument has been interrupted. Check the Logging Status window for the current communication status. If the total number of errors for the Hydra continually increase, communication is still being interrupted.

To prevent this error message from reoccurring, click on the Disable this warning check box. The error message is not displayed again until you exit and restart Hydra *Logger for Windows*.

Hydra X: Date/Time Corrupted!

The Hydra instrument no longer contains a valid date and time. Press the <Shift> INTVL button on the front panel of the Hydra instrument to ensure that the date and time are correctly set. This message can also occur if the Hydra's internal clock has failed. In this case, see the Hydra manual's maintenance chapter for information on servicing the instrument.

Hydra X: Hydra Command Error!

The Hydra received a command it did not recognize, probably due to a communication error. Retry the operation.

Hydra X: Hydra Execution Error!

The Hydra could not execute a command, possibly due to a communication error. Retry the operation.

If this error is displayed when starting logging on a 2635A Data Bucket with memory card data recording enabled, check the memory card status. Scanning cannot be started with data going to the memory card if there is a memory card error (card not present, not formatted, file error, etc.) Check if the memory card is firmly seated in the socket.

If this error is displayed when attempting a memory card file conversion or other file operation on a card located in a 2635A Data Bucket, check if the instrument is actively scanning its channels. Memory card data transfer cannot be started if scanning is active in the instrument. Use the instrument front panel SCAN button to turn scanning off.

Hydra X: Hydra Scan Memory Full!

Hydra scan memory is full. This condition occurs when scans are being logged faster than Hydra *Logger for Windows* can retrieve them and the scan memory eventually fills up. This may be caused by frequent or prolonged communication interruptions that prevent Hydra *Logger for Windows* from collecting scans fast enough, or by the Hydras being configured for short scan intervals so that Hydra *Logger for Windows* cannot keep up even under ideal communication conditions.

This error can also occur if communication with the remote Hydra was temporarily interrupted. When communication is restored, the application queries the Hydra instrument's scan memory. If the Hydra responds that its scan memory is full, this message is displayed.

When Hydra scan memory becomes full, the Hydra instrument either overwrites the oldest scans in memory or stops storing new scans. The oldest scans are overwritten if the Wrap-Around Logging Mode has been enabled in the Hydra configuration dialog.

Hydra X: N Scan(s) in Hydra memory will be lost!

This warning occurs when a Hydra configuration is about to be downloaded to the Hydra, and scans remaining in Hydra memory will be cleared as a result. Scans can be left in Hydra memory if some loss of communication has occurred, or if Hydra *Logger for Windows* attempts to retrieve the remaining scans after you stop logging and you abort the retrieval.

If you have checked the Download Config. on Start selection under the Logging menu and selected Start Hydra , or have selected Download Hydra Config. from the Utilities menu, this warning is also displayed.

To continue and erase the stored scans, select Continue. To cancel, press Cancel.

If you are attempting to start the Hydra logging but do not want to lose the scans currently in Hydra memory, select Resume Logging on Start under the Logging menu and try starting the Hydra again. Since the configuration is uploaded to the PC instead of downloaded to the Hydra, the scans in the Hydra memory are not cleared.

Hydra X: No Channels Defined!

None of the channels on Hydra *X* have been defined. You must define at least one channel for the Hydra before attempting to start logging with the Hydra. Use Edit Hydra Config Channels to define the channels.

Hydra X: Not enough memory to perform operation!

Not enough memory is available in the Host Computer to perform the operation. Close other applications and try again.

Hydra X: RS-232 Communications Error!

This message appears when an error occurs over the RS-232 serial port. Occasional RS-232 errors occur more often for high baud rates, and during file operations or network accesses.

If this error occurs repeatedly, there may be a more serious problem. First, verify that the serial port settings in Hydra *Logger for Windows* match the settings in the Hydra instrument. If these are correct, the problem is probably due to a hardware conflict in the PC, such as a serial mouse or an internal modem sharing the same interrupt request line as the serial port.

Hydra X: Time-out waiting for Hydra!

The Hydra was unable to communicate with the PC. This error occurs when the Hydra is turned off, configured for the wrong baud rate or parity, not connected to the PC, or not a Hydra instrument.

Hydra X: Unable to initialize communications port!

Hydra *Logger for Windows* is unable to initialize the PC's serial COM port. This indicates that the COM port does not exist or is being used by another application.

Hydra X: Unable to Stop Hydra Scanning!

An error occurred when attempting to stop data collection. Use the Hydra Front Panel controls to stop scanning at the instrument.

Hydra X: Unable To Write To Data File!

Hydra *Logger for Windows* was unable to write Hydra scan data to the data file. This could indicate that the directory structure for the data file has been deleted, that the application no longer has write permission for the file, or that the disk is full.

Hydra X: Unsupported model or version of Hydra!

This error occurs if you are using any Hydra instrument other than a 2625A Data Logger using software version 5.5 or later, or 2635A Data Bucket. To determine the version of the software running on the 2625A, press the right and left arrow keys on the Hydra instrument simultaneously. The version number is shown in the center of the display. Press the CANCL key to exit.

Instrument does not support memory card!

The instrument selected is a Hydra model that doesn't support memory card operations.

Invalid Factor (M) Value!

The display range selected cannot accommodate the scale factor (M) value entered. Review the allowed combinations for display range and scale factor value.

Invalid Maximum Value for Display Range!

The Display Range selected cannot accommodate the value entered. Review the allowed combinations for display range.

Invalid Maximum Value for Input Range!

The value typed for the maximum value for computing M and B for a channel is invalid.

Invalid Memory Card File Name Selected!

Memory card data files must be named `datnn.hyd`, where nn is 00 through 99. Memory card configuration files must be named `setnn.hyd` where `nn` is 00 through 99. Other file names are not allowed on Data Bucket memory cards.

Invalid Minimum Value for Display Range!

The Display Range selected cannot accommodate the value entered. Review the allowed combinations for display range.

Invalid Minimum Value for Input Range!

The value typed for the minimum value for computing M and B for a channel is invalid.

Invalid Offset (B) Value for Display Range!

The display range selected cannot accommodate the offset (B) value entered. Review the allowed combinations for display range and offset value.

Invalid Plot Maximum value!

The maximum value entered is an invalid number.

Invalid Plot Minimum value!

The minimum value entered is an invalid number.

Invalid scan entries!

The first and last scan to upload must be greater than 0 and less than the maximum number of scans in the memory. The first scan value must be less than or equal to the last scan value.

Invalid Scan Interval Entry!

The scan interval must be equal to or less than 38439 seconds and greater than or equal to 0 seconds.

Invalid Scans To Skip Value!

The scans-to-skip entry must be less than 65535 and greater than or equal to 0.

Invalid Time Span Entry!

The time span entered for the Quick Plot x axis must be between 0 and 100.

Load Configuration Failed!

Loading the configuration file from the memory card failed. The configuration file may have been damaged or there was a communications error.

Low on memory!

There is not enough memory to complete the current operation. Either close some applications, or exit and restart Windows.

Maximum number of channels reached!

A maximum of 8 channels may be placed on the Quick Plot.

Maximum number of Hydras reached!

The maximum number of Hydra instruments (2) have already been created. An unused Hydra may be reconfigured for use or deleted by selecting it, and executing the Delete Hydra command from the Setup menu.

Memory Card Battery Is Low!

The memory card battery is low. Replace before attempting operations.

Memory Card Directory too Big!

Directory read from the memory card is too big for the input buffer in the PC. Some directory entries are not displayed in the list. This cannot happen if the file naming rules are followed.

Memory Card Is Not Reliable Due To Battery!

The memory card battery is low or unreliable. Replace the battery before attempting operations.

Memory card Is Write Protected!

Writing to the memory card is prevented because the card is write protected. Check the position of the write protect switch on the memory card.

Minimum and Maximum values for Input Range must be farther apart!

The minimum and maximum value of the input range for M and B computation must be greater than 1.0E-6 apart in value.

Minimum free disk space must be between 0 and 100000!

The minimum free disk space remaining that triggers a data file rollover must be between 0 (totally full) and 100000 K Bytes.

Must run in protected mode (standard or enhanced)!

Restart Windows to run in protected mode (standard or enhanced).

Must Select Function for Monitor Channel!

The monitor channel must not be OFF - select a function for the monitor channel.

Must Select Monitor Channel for Monitor Alarm Trigger!

A monitor channel must be selected before enabling monitor alarm trigger mode.

Must Select Monitor Channel for Monitor Lock!

A monitor channel must be selected before enabling monitor lock mode.

N Scan(s) in Hydra memory will be lost!

This warning occurs when a Hydra configuration is about to be downloaded to the Hydra, and scans remaining in Hydra memory will be cleared as a result. Scans can be left in Hydra memory if some loss of communication has occurred, or if Hydra *Logger for Windows* attempts to retrieve the remaining scans after you stop logging and you abort the retrieval.

If you have checked the Download Config. on Start selection under the Logging menu and selected Start Hydra , or have selected Download Hydra Config. from the Utilities menu, this warning is also displayed.

To continue and erase the stored scans, select Continue. To cancel, press Cancel.

If you are attempting to start the Hydra logging but do not want to lose the scans currently in Hydra memory, select Resume Logging on Start under the Logging menu and try starting the Hydra again. Since the configuration is uploaded to the PC instead of downloaded to the Hydra, the scans in the Hydra memory are not cleared.

No Channels Defined!

None of the channels on Hydra *X* have been defined. You must define at least one channel for the Hydra before attempting to start logging with the Hydra. Use Edit Hydra Config Channels to define the channels.

No destination file selected!

An operation was attempted that needs to have a memory card destination file selected first.

No Memory Card File Selected!

An operation was attempted that needs to have a memory card file selected first.

No scans left in instrument memory!

There are no scans in the instrument scan memory.

No timers available!

Hydra *Logger for Windows* requires the use of a timer. This error occurs when all timers (a limited Windows resource) are being used by other applications. Close some applications that are using timers (for example, the clock application under Windows Accessories) and try again.

Not Enough Disk Space for Conversion!

There was not enough space on the default disk drive to create the temporary file used in memory card upload and conversion.

Not enough disk space to save the file!

A disk space available error was detected during a file save operation. Check how much space is available on the drive.

Not enough memory for number of channels selected!

Close some applications or exit from and restart Windows.

Not enough memory to perform operation!

Not enough memory is available in the Host Computer to perform the operation. Close other applications and try again.

Plot Maximum must be larger than Plot Minimum!

The plot maximum scale must always be greater than the plot minimum scale value.

RS-232 Communications Error!

This message appears when an error occurs over the RS-232 serial port. Occasional RS-232 errors occur more often for high baud rates, and during file operations or network accesses.

If this error occurs repeatedly, there may be a more serious problem. First, verify that the serial port settings in Hydra *Logger for Windows* match the settings in the Hydra instrument. If these are correct, the problem is probably due to a hardware conflict in the PC, such as a serial mouse or an internal modem sharing the same interrupt request line as the serial port.

Save Configuration Failed!

Saving the configuration file to the memory card failed. There may have been a communications error or the card was full.

Selected Trend Link Data Set already contains data for instrument!

The name you selected for your Trend Link data file is already being used by another instrument. Delete the Data Set or create a new Data Set.

Setup file is Invalid!

The selected setup file is either not a Hydra *Logger for Windows* setup file or its contents have been corrupted.

TC measurements not allowed on channel 0!

Channel 0 cannot be used for thermocouple measurements – choose some other channel function.

There is not enough free disk space for the Trend Link Data Set files!

Check the amount of disk space remaining and free some space for the Data Set files.

This channel is already in the list!

The channel selected is already on the Quick Plot channel selection list.

Time earlier than existing Trend Link data!

This message indicates that the Trend Link Data Set you are trying to initialize or log to has a timestamp that is newer than the timestamp of the scans to be uploaded or logged.

This message can occur under the following conditions:

1. An attempt is being made to upload scans from the instrument memory or from a memory card file that have been uploaded previously or are out of order with the current timestamps in the Data Set. You can delete the Data Set or create a new Data Set.

2. The Instrument clock is slightly faster than the PC clock. If Hydra *Logger for Windows* runs for several days, when the instrument is stopped, the last recorded timestamp may be later than the PC time. In this case, wait for the PC time to "catch up" before synchronizing the Hydra clocks and trying to initialize the Trend Link data file for collecting additional data. For example, if the PC time is 1 minute behind the instrument time, wait at least 1 minute before restarting. You can also create a new Trend Link Data Set.
3. The PC clock is losing time. Reset the PC clock to the correct time. If this problem continues, you may have to replace the battery in your PC that powers the internal clock.
4. The PC clock is set to a new time. You will not be able to log data to an existing Trend Link file after changing the PC clock to a time earlier than the timestamps in the Trend Link file. To continue, let the PC time catch up to the time recorded in the timestamps or create a new Trend Link file.

Time Interval must be between 1 and 99!

The time interval to trigger a data file rollover must be in hours between 1 hour and 99 hours.

Time-out waiting for Hydra!

The Hydra was unable to communicate with the PC. This error occurs when the Hydra is turned off, configured for the wrong baud rate or parity, not connected to the PC, or not a Hydra instrument.

Trend Link Data Set file not found!

Close Trend Link, start logging again, and then reopen Trend Link.

Trend Link file prefix must be 7 characters or less!

The Trend Link file name you enter is actually used to create a directory. The directory name is the name you enter, proceeded by an underline character. Because of this, you may enter only 7 characters for a Trend Link file name.

Unable to Create Configuration Text File!

The application was not able to create the Hydra configuration text file. Make sure that the full path of the file is correct.

The FILES setting in `CONFIG.SYS` file should be set to at least 30.

Unable to Create Quick Plot Window!

The application was unable to create a new Quick Plot window. This error can occur if not enough memory is available. Close some applications, or exit and restart Windows; then try again.

Unable to create Trend Link Data Set chart file!

Once the Data Set directory is created, a default chart file is created within the directory. This error indicated that this file creation failed. Check that the directory permission is not set to Read-Only, check the path for your data file to make sure the directory path allows access, and verify you have sufficient disk space for the new chart file.

Unable to Delete Memory Card File!

Unable to delete the memory card file — check write permission.

Unable to get a Trend Link DLL function address!

Failure in an attempt to call a specific function within the tbase DLL. Check if the DLL file has been corrupted or is an incompatible version.

Your Trend Link installation may be missing the required `tbase.dll` file.

Check that your Trend Link installation is complete. You may also be trying to operate with portions of an older version of Trend Link. Reinstall Trend Link following the procedures in the Hydra *Logger for Windows* manual.

Unable to initialize communications port!

Hydra *Logger for Windows* is unable to initialize the PC's serial COM port. This indicates that the COM port does not exist or is being used by another application.

Unable to initialize DDE!

An error occurred while you were trying to initiate DDE. Try closing some other applications that are currently using DDE and try again.

Unable to load Trend Link DLL!

The tbase DLL is used by Logger to write Trend Link Data Set information. This DLL is a part of the Trend Link package must be loaded by Windows before any Trend Link operations are performed.

Logger is unable to load the Trend Link `tbase.dll` into memory.

Check that you have sufficient memory space to load `tbase.dll`, that `tbase.dll` has not been corrupted, or you are not trying to operate with portions of an older version of Trend Link. Reinstall Trend Link following the procedures in the Hydra *Logger for Windows* manual.

Unable to Open Setup File!

The application was not able to open the setup file specified on the command line or with the Load Logger Setup command.

Ensure that the full path of the setup file is correct and that the file exists. If this error occurs when starting Hydra *Logger for Windows* with a setup file on the command line, be sure you have the correct command line format.

```
[path\]hlogger.exe [filename [/g]]
```

If you use Save Logger Setup under the Setup menu, the application attempts to save the setup file using the directory structure of the previous Save Logger Setup As command. If the directory structure has changed, the application cannot save the setup file.

Another possible cause of this error may be that another application has opened the file, denying write permissions to other applications.

The FILES setting in `CONFIG.SYS` file should be set to at least 30.

Unable to read Trend Link default template chart file!

The `tldef.cht` file is missing from the Hydra *Logger for Windows* directory. This file establishes the default Trend Link Chart file format.

Unable to Stop Hydra Scanning!

An error occurred when attempting to stop data collection. Use the Hydra Front Panel controls to stop scanning at the instrument.

Unable to Write to Configuration Text File!

The application was not able to write to the Hydra configuration text file. This error can occur if the disk becomes full. The `FILES` setting in `CONFIG.SYS` file should be set to at least 30.

Unable To Write To Data File!

Hydra *Logger for Windows* was unable to write Hydra scan data to the data file. This could indicate that the directory structure for the data file has been deleted, that the application no longer has write permission for the file, or the disk is full.

Unable to Write to Setup File!

The application was not able to write to the setup file specified in the command line switch or the Load Logger Setup menu.

Ensure that the setup file exists and is located in the correct directory. If you use Save Logger Setup under the Setup menu, the application attempts to write to the setup file using the directory structure of the previous Save Logger Setup As command. If the directory structure has changed, the application cannot write to the setup file. The `FILES` setting in `CONFIG.SYS` file should be set to at least 30.

Unsupported model or version of Hydra!

This error occurs if you are using any Hydra instrument other than a 2625A Data Logger using software version 5.5 or later, or 2635A Data Bucket. To determine the version of the software running on the 2625A, press the right and left arrow keys on the Hydra instrument simultaneously. The version number is shown in the center of the display. Press the CANCL key to exit.

WARNING: Only X bytes of free disk space remain on Y for Trend Link data!

This warning is displayed when the amount of free disk space remaining on the Y drive is less than the user-entered value. See Automatic Data File Rollover in Chapter 4 for more information on setting the minimum free disk space and rolling over the Trend Link data file when this limit is reached.

Window creation failed!

The application was unable to create a new window. This can occur if not enough memory is available. Close applications, or restart Windows, and try again.

Appendix D
Dynamic Data Exchange (DDE)

DDE Server Description

Hydra *Logger for Windows* provides Hydra data to other Windows applications using Dynamic Data Exchange (DDE). Access to the Hydra *Logger for Windows* DDE server is through the following service, topic, and item names (not case sensitive). Refer to your application for entering this information.

Application or Service Name:

"HLogger"

Topics:

"System"

"Hydra1"

"Hydra2"

Items (System Topics):

"Topics"	List of available topics
"Systems"	List of available system items
"Formats"	List of available formats (text only)

Items (Hydra Topics):

"C0"	Chan 0 reading
"C1"	Chan 1 reading
... and so forth to	
"C20"	Chan 20 reading
"Hydra_Name"	Hydra Name
"RDateTime"	Seconds since 00:00:00 1/1/1970
"ELDateTime"	Date/time in Excel and Lotus 1,2,3 format
"DIO"	Hydra DIO (DIO 0-11)
"Totalizer"	Hydra Totalizer value

Appendix E
Fluke Service Centers

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FAX: (714) 757-7556

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Altamonte Springs,
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TEL: (407) 331-2929
FAX: (407) 331-7710

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1150 W. Euclid Avenue
Palatine, IL 60067
TEL: (708) 705-0500
FAX: (708) 705-9989

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Paramus, N.J. 07652-0930
TEL: (201) 599-9500 (599-0919)
FAX: (201) 599-2093

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FAX: (214) 406-1072

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Lacarra 234
Buenos Aires CP 1407
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FAX: 54-1-636-2185

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Kaltim - Zagreb
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Customer Support
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Appendix F
Exception Condition Handling

Exception Condition Handling

This appendix describes how Hydra *Logger for Windows* handles exception conditions during operation.

Communication Errors

If a communication error occurs (time-out, overrun, framing, or parity) during the reception of scan data, the request for data is repeated up to three times. If all three attempts fail, Hydra *Logger for Windows* then goes on to service the other Hydra before again asking the Hydra for data. The number of accumulated communication errors appears in the Logging Status window, along with a short description of the last communication error.

If the communications connection to a Hydra is interrupted during logging, Hydra *Logger for Windows* times out each time it attempts to communicate with the Hydra. These time-outs appear as communication errors in the Logging Status window display, and a window is displayed with a warning message, bringing the Hydra *Logger for Windows* application to the top.

After communications are restored, if the Hydra's scan memory has become full, a window with a warning message indicating possible data loss is displayed.

Hydra *Logger for Windows* attempts to retrieve scans stored in the Hydra's scan memory during the communication loss.

Full-Disk

If the disk becomes full during data collection or if the directory structure is deleted so that attempts to write to the data file fail, subsequent scans are not recorded, but communication with the Hydra and data display continues. A window with a warning appears, bringing the Hydra *Logger for Windows* application to the top. When the problem is fixed, Hydra *Logger for Windows* resumes recording scans in the file.

Invalid Entries

Diagnostic messages are displayed if the user enters invalid values into the fields of a dialog box.

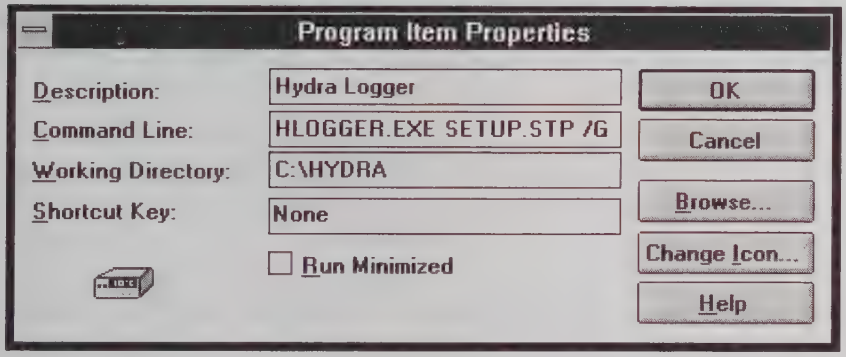
Loss of Power

To automatically start Hydra *Logger for Windows* and *Trend Link for Fluke* upon start up of the Windows operating environment, place the Fluke Hydra Logger icon and Trend Link icon in the StartUp Program Manager. Windows runs each application placed in the StartUp group when it initially starts. To ensure that Windows starts upon start up of the host computer, place the WIN command as the last line in the `AUTOEXEC.BAT` file.

Hydra *Logger for Windows* Complete the following procedure to automatically resume Hydra *Logger for Windows* operation after a loss and then restoration of power to the Host Computer.

1. In DOS, verify that your `AUTOEXEC.BAT` file includes `WIN` to start windows when power is returned to the Host Computer. Be sure there is nothing in the `AUTOEXEC.BAT` or in Windows that requires a prompt, e.g., network name, passwords, etc.
2. In Program Manager, select the Copy command from the File menu to copy the Hydra Logger icon (in the Fluke Hydra Logger group) to the Windows StartUp group. Create the StartUp group if it does not exist, using the New command from the File menu in Program Manager.
3. Highlight (but do not open) the Hydra Logger icon in the StartUp group. Select the Properties command from the File menu in Program Manager. At the end of the Command Line in the Program Item Properties dialog box, add the name of the special setup file that will be in use when the Host Computer power is restored, and follow this with the `/G` switch.

For example, using the special setup file `SETUPG.STP`, the entire Command Line would read: `C:\HYDRA\HLOGGER.EXE SETUPG.STP /G` (below). `SETUPG.STP` (for example) is a special setup file that is identical to the normal setup file, except for a few settings described below.



4. Open Hydra Logger from the Fluke Hydra Logger group of Program Manager. Select the Load Logger Setup command from the Setup menu, and select the desired setup file for normal operations. For example, `setup.stp`. Click OK.

5. Select the Save Logger Setup As command from the Setup menu and enter the name of the special setup file. For example, `setupg.stp`. Click OK. This filename must agree with the filename entered in step 3.

6. Add the following selections to the special setup file: select the Resume Logging on Start command from the Logging menu, and for each Hydra, if ASCII data file format is selected, select Append to File in the Data File Configuration dialog box (click the Edit Hydra Config button; then Data File button). Click OK twice to return to the Main Window.

7. Select the Save Logger Setup command from the Setup menu to save the selections entered in step 6.

8. To test the automatic data collection feature when power is lost, close all Windows applications except for Hydra *Logger for Windows*. Click the Start Hydra button in the Hydra *Logger for Windows* Main Window and verify data collection activities.

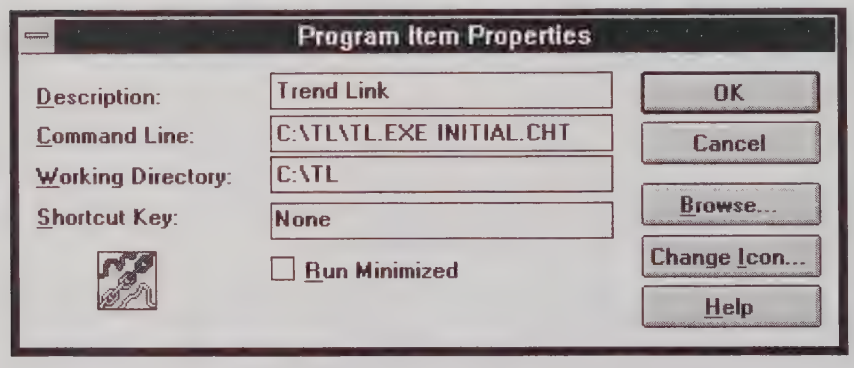
9. Turn the Host Computer power off, pause; then turn it on again. Observe that the Host Computer reboots and resumes Hydra *Logger for Windows* data collection activities, as displayed on the Logging Status dialog box.

Trend Link for Fluke Complete the following procedure to automatically resume real-time plotting in Trend Link after a loss and then restoration of power to the Host Computer.

1. In DOS, verify that your `AUTOEXEC.BAT` file includes `WIN` to start windows when power is returned to the Host Computer. Be sure there is nothing in the `AUTOEXEC.BAT` or in Windows that requires a prompt, e.g., network name, passwords, etc.

2. In Program Manager, select the Copy command from the File menu to copy the Trend Link icon (in the Information Links group) to the Windows StartUp group. Create the StartUp group if it does not exist using the New command from the File menu in Program Manager.

3. Highlight (but do not open) the Trend Link icon in the Information Links group. Select the Properties command from the File menu in Program Manager. At the end of the Command Line in the Program Item Properties dialog box, add the name of the chart file that will be in use when the Host Computer power is restored. For example, is you use the chart file `INITIAL.CHT`, the entire Command Line would read: `C:\TL\TL.EXE INITIAL.CHT` (see below). `INITIAL.CHT` (for example) is a chart file that is identical to the normal Trend Link chart file, except for a few settings described below.



4. Open Trend Link from Hydra *Logger for Windows* by selecting the Show Trend Link menu item under the Plot/Trend main menu item.

5. Format the chart to the appearance that you want when restarting from a power up condition. Make sure that real-time plotting is enabled.

6. Select the Save Chart As command from the Files menu, and enter the name of the chart file you added to the command line in the Trend Link icon properties in step 3 above. For example, `INITIAL.CHT`. Click OK. This filename must agree with the filename entered in step 3.

7. To test the automatic data collection feature when power is lost, close all Windows applications except for Hydra *Logger for Windows*. Click the Start Hydra button in the Hydra *Logger for Windows* Main Window and verify data collection activities.

8. Turn the Host Computer power off, pause; then turn it on again. Observe that the Host Computer reboots and resumes *Trend Link for Fluke* data plotting activities.

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